

319
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PHILOSOPHICAL
AND
LITERARY
ESSAYS.

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AND
LITERARY
ESSAYS.

BY
DR GREGORY, OF EDINBURGH.

VOL. II.

*Nam Sophia ars illa est, - que fallere suaviter horas
Admonet, atque orci non timuisse minas.*

PSEUDON: apud PITCAIRN.

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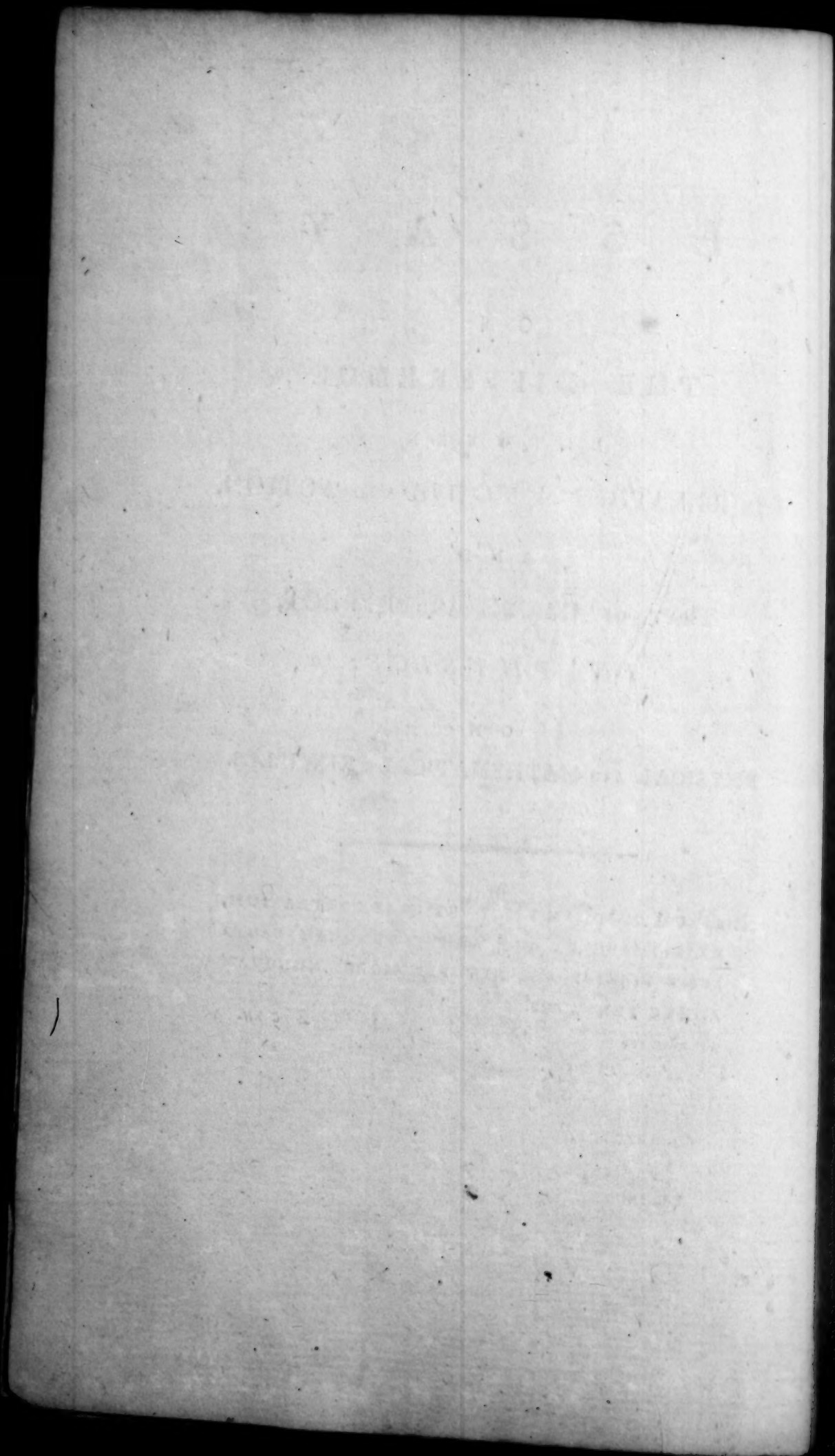


EDINBURGH:
J. GADSDEN, Printer,
AND W. GREGORY, Bookseller,
MDCCCLXII

E S S A Y
O N
THE DIFFERENCE
B E T W E E N
THE RELATION OF MOTIVE AND ACTION,
A N D
THAT OF CAUSE AND EFFECT,
I N P H Y S I C S :
O N
PHYSICAL AND MATHEMATICAL PRINCIPLES.

INSANUM QUIDDAM ESSET, ET IN SE CONTRARIUM,
EXISTIMARE EA QUÆ ADHUC NUNQUAM FACTA
SUNT FIERI POSSE, NISI PER MODOS NUNQUAM
ADHUC TENTATOS.

BACON.



C O N T E N T S.

S E C T. I.

	Pag.
<i>Remarks on the striking similarity, and the generally supposed difference, between the relation of Motive and that of Physical Cause;—on Mr HUME's doctrine of their perfect identity;—on his just and important distinction between Necessary Connection and only Constant Conjunction;—on his attempt to account for the popular persuasion of the Liberty of human Actions, on his own principles,</i>	1

S E C T. II.

<i>Remarks on the commonly assumed principle, That nothing exists, or that no event comes to pass, without a cause.—Obscurity and ambiguity of this principle, from the vague meaning of the</i>	term
--	------

term Cause.—According to the extensive, generic, metaphysical sense of the term Cause, it must be admitted as universally and necessarily true;—but then it bears no relation to the question of Liberty and Necessity.—In the limited, specific, physical sense of the term Cause, it must not be admitted, 1st, as being almost a begging of the question; 2dly, as being unsupported by any evidence.—The question of the universality of Motives for every Action to be avoided, as requiring an appeal to consciousness.—Those Actions alone to be considered, and compared with physical Effects, for which there are evident and acknowledged Motives,

37

S E C T. III.

General Plan of the reasoning employed in this Essay;—to admit the doctrine of Necessity unquestioned as a principle;—to reason from it by necessary consequences, ad falsum and ad absurdum.—Justification of the use of Mathematical

CONTENTS.

v

Pag.

*thematical reasoning on this subject ;
—possibility of applying it ;—advan-
tages of it,—simplicity,—perspicuity,
—precision, —comprehensiveness ;—
certainty of its principles ;—confidence
in the perception of necessary relation
at every step, and consequently in the
whole of it.—Distinctness of the no-
tion of Quantity, both proper and im-
proper ;—the various relations of
Quantity familiar to us.—Whole chain
of reasoning before us at once ;—im-
probability of committing any error in
it ;—facility and certainty of detect-
ing any error that may be committed
in it ;—impossibility of cavilling or
disputing about such an error.—Pre-
rogative of Mathematical reasoning ;
—authority of it higher than that of
unassisted judgement, or of any other
mode of reasoning ;—to be tried only as
good or bad of its kind ;—if good, it
is supreme and conclusive,*

61

SECT.

S E C T. IV.

Reasons for not attempting to give strict definitions of the terms employed in this Essay.—Sentiments of BACON on this subject.—Means of supplying the want of definitions on certain subjects.—Observations on the meaning of some of the terms employed.—Justness of ARISTOTLE's definition of the final Cause or Motive;—physical Cause;—Constant Conjunction;—Power;—Want of Power, or Inertia of Mind;—Mind;—Body, - 115

S E C T. V.

Explanation of the Algebraical Characters and Symbols employed in this Essay, - - 164

S E C T. VI.

Difference between the relation of Motive and Action and that of Cause and Effect in Physics, stated in the form of a Proposition.—To be demonstrated by an argument ad falsum and ad absurdum.

CONTENTS.

vii

Pag.

furdum.—Dilemma.—The relation of Motive and Action must be either a constant conjunction, or not a constant conjunction.—General necessary consequences of the notion of Constant Conjunction, expressed algebraically, and reduced to the form of Canons or Axioms, - - 170

S E C T. VII.

Illustrations of the exact import of the reasonings in the preceding section.—Instances of the truth of the inferences from the principle of Constant Conjunction in cases of Cause and Effect in Physics; and of the plausibility of them in many cases of the relation of Motive and Action, - 178

S E C T. VIII.

*Further instances of the truth of the three Canons, in Mechanical Philosophy, and in Chemistry: and of striking analogy to them in Vegetation, and in Sensation, and Belief; in which occurrences or operations, though there
be*

be a different relation between the event observed and the principle of Change, and in some of them a different principle of Change from what there is in cases of Cause and Effect in inanimate matter; yet there is either no optional or discretionary power, or but very little of it, in the subject, with respect to the Change that takes place,

193

S E C T. IX.

Inference from the doctrine of the Constant Conjunction of Motive and Action, which is demonstrated as a necessary consequence of it, and yet is notoriously false in point of fact,

221

S E C T. X.

Mathematical demonstration, that the doctrine of the Constant Conjunction of Motive and Action is absurd, as being inconsistent with itself,

243

S E C T.

CONTENTS.

ix

Pag.

S E C T. XI.

Illustrations of the absurdities and inconsistencies which are necessary consequences of the doctrine of the Constant Conjunction of Motive and Action,

249

S E C T. XII.

Observations on the case of the increase or concurrence of Physical Causes and of Motives respectively.—The result with respect to Physical Causes consistent with the principle of Constant Conjunction.—The result with respect to Motives only sometimes consistent with that principle, and often repugnant to it, but always consistent with the vulgar notion of Motive.—Observations on the parallel case of the increase or concurrence of the external, partial, exciting Causes in Physiology,

267

S E C T. XIII.

Observations on some circumstances that have contributed to conceal from the
b view

CONTENTS.

	Pag.
<i>view of men of science the absurdities and inconsistencies which are necessarily implied in the doctrine of the Constant Conjunction of Motive and Action,</i>	296

S E C T. XIV.

<i>Observations on an ancient paradox, with respect to the notion of Motive, founded on the analogy between Agent and Motive, and the ambiguity of common language.—Analogy between it and the modern philosophical doctrine of Necessity,</i>	304
--	-----

S E C T. XV.

<i>General illustration and confirmation of the reasonings in the nine preceding sections, from Sir ISAAC NEWTON's reasonings in his Principia.—Commentary on his argument in proof of his first corollary from the three laws of Motion.—That corollary and argument resolvable into the principles of Inertia of the subject, and constant conjunction of Cause and Effect, or into the</i>	
---	--

Pag.

the latter principle singly, as it implies the former.—Impossibility of assigning a reason, consistent with the principles, for the different result, in the case of lifeless bodies, and in that of living persons.—Absurdity of such an attempt.—Either the inferences must be admitted, or the latter principle must be given up, with respect to Motives and Actions,

310

S E C T. XVI.

Second part of the Dilemma stated.—The Inertia of Mind.—Irresistible influence of Motives which are not constantly conjoined with their respective Actions or Effects, but occasionally separated from them.—Repugnance of this occasional separation or conjunction to the assumed principle, That every Event or Change is an Effect implying a Cause.—Impossibility of its proceeding from any Cause constantly conjoined with its Effect.—Necessity of its either coming to pass without any Cause, and purely by chance, or else being

b 2

produced

produced by an Agent having optional or discretionary power to separate or to conjoin Motives and Actions.—Supposition of its coming to pass without any cause stated, and considered on the principle of the doctrine of Chances.—Necessary inferences from it, that are false, and repugnant to the universal notion of the relation of Motive and Action,

337

S E C T. XVII.

The common doctrine of Necessity stated, with the modification, that the strongest Motive alone is conjoined with its proper Action, and that all the weaker and opposing Motives are separated from theirs.—Various circumstances of falsity and absurdity in this doctrine, which are to be demonstrated.—Preliminary Questions stated.—What is meant by the force or strength of such Motives?—What is the test or measure of their strength?

355

S E C T.

CONTENTS.

xiii

Pag,

S E C T. XVIII.

Remarks and Queries concerning the notion of the absolute Strength or Force of Motives that are not constantly conjoined with their respective Actions,

360

S E C T. XIX.

Remarks on the difficulty or impossibility of finding a proper test of the absolute force of Motives that are not constantly conjoined with their respective Actions.—The phrase strongest Motive is synonymous with the phrase Motive according to which a person acts; and is therefore nugatory in this investigation,

374

S E C T. XX.

Supposition of the absolute Force of Motives not constantly conjoined with their respective Actions, with the modification that the strongest Motive alone is conjoined with its proper Action,

tion, while the opposing weaker Motive is always separated from its Action, and that the prevailing Motive is always the strongest, in so far as it is intelligible, stated accurately,—considered mathematically.—Necessary inferences from it, that are absurd and impossible, - -

384

S E C T. XXI.

Reasons for wishing to try experimentally, as a mere matter of fact, the conclusion demonstrated in the preceding Section.—Important use that may be made of such an experiment.—Difficulty of finding a proper case for the subject of experiment, independent of all hypotheses, and all appeals to consciousness.—Such a case pointed out by the aid of Mathematical reasoning.—The result, according to the doctrine of Necessity, however modified, is inconsistent with plain matter of fact, with the common notion of Motive, and with the belief and expectation of

CONTENTS.

xv

Pag.

of those who assert the doctrine of Necessity; yet is possible in itself, and the corresponding inference with respect to physical causes and effects is universally true, and is always expected to prove so.—Inference from this,

400

S E C T. XXII.

Summary of the Dilemma. — Ultimate conclusion of the argument with respect to the general nature of the difference between the relation of Motive and Action and that of Cause and Effect in Physics.—Reasons for not attempting in this Essay the investigation of the particulars relating to the Self-governing Power in Persons.—Impossibility of doing it without appealing to Consciousness and Common Sense,

458

77

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100

E S S A Y.

S E C T. I.

Remarks on the striking similarity, and the generally supposed difference, between the relation of Motive and that of Physical Cause; —on Mr HUME's doctrine of their perfect Identity; —on his just and important distinction between Necessary Connection and only Constant Conjunction; —on his attempt to account for the popular persuasion of the Liberty of human Actions, on his own principles.

AMONG all the various relations that have engaged the attention either of philosophers or of mankind in general, there is none which has commonly been thought to bear a closer and more striking resemblance and affinity to that of

A cause

cause and effect in physics, than the familiar and well-known relation between the ordinary voluntary determinations and actions of men, and the motives or principles of action to which they are referred, and from which they are conceived in some measure to proceed: yet there are none which the vulgar distinguish more readily and uniformly, in point of thought at least, however they may express them in words; nor any which philosophers have more industriously or more successfully laboured to confound.

The popular persuasion of what is called the Liberty of human actions implies a conviction, that there is an important and well-understood difference between those two relations.

The philosophical doctrine of Necessity implies and consists in the persuasion, that the two relations in question are either precisely or very nearly the same.

The former by no means consists in the belief, that there is no relation between motives

motives and the determinations and actions of men, which is the notion of it that many philosophers have unluckily adopted, and imputed to the vulgar, and employed much labour and ingenuity in refuting; but in the belief that there is in man, besides the motives of his voluntary determinations and actions, another principle of change and activity, a certain independent, self-governing, self-determining power, which he may at his own discretion exert, by acting either according to motives, or in opposition to motives, or without any motives at all: while, on the contrary, it is conceived that there is no such power in inanimate bodies; and that every change occurring in such bodies is purely an effect of some cause, in consequence of which it comes to pass, perhaps necessarily, and at least certainly and inevitably; bodies being equally unable to produce any change in themselves, or to prevent any change in themselves, corresponding to a cause applied.

The latter doctrine implies, that whatever other differences there may be be-

tween the relation of motive and action, and that of physical cause and effect, there is at least no such independent principle of change and activity, or self-governing power, in living persons, any more than in lifeless bodies; and that all our determinations and actions come to pass in consequence of the motives applied, as purely, as certainly, as irresistibly on the part of the person, as physical effects in consequence of the application of their respective causes.

That there is an evident and well-known relation between the actions of men and their appetites, passions, desires, aversions, judgements of right and wrong, expedient and inexpedient, and in general whatever are regarded as motives or principles of action, I believe never was nor ever can be doubted or denied by any man of sense and candour.

It would surely be needless and ridiculous to set about proving, that there is a most evident and intimate relation between hunger and eating, between thirst and

and drinking, between fear and dastardly conduct in the hour of danger, between benevolence and good offices, between anger, or malice, or rapacity, and unjust, unkind, and cruel behaviour. It would even be unnecessary to mention a truth so obvious and generally acknowledged, were there not reason to think, that some authors, who had espoused the popular side of the question concerning Liberty and Necessity, had gone so far, in the heat of controversy, as to deny that there was any particular relation between motives and actions. This may be inferred from the manner in which some of the ablest advocates for the doctrine of Necessity; and particularly Mr HUME, have stated their arguments. Mr HUME's reasonings proceed chiefly on the supposition, that those who held the opposite opinion to his, denied that there was any such relation between motives and actions as might enable us to reason from the one to the other. The same misapprehension of the popular persuasion of Liberty is apparent in the writings of Dr PRIESTLY, vol. 2. p. 87. & 88. in the account of the character of his supposed

fed son B, to whom he attributes what he calls Philosophical Liberty. No authors, indeed, have come to my knowledge, who maintained expressly such an opinion; but as it seems to have been imputed to some, particularly to DR KING by LEIBNITZ, it is proper to disclaim it in the most explicit terms, as being not merely erroneous, but extravagant, and as repugnant to popular belief, or common sense, as the philosophical doctrine of Necessity.

It may even be thought a very foolish, or at best a needless attempt, to set about explaining to men in any degree the nature of the relation between motive and action; as it is scarce credible that any thing should be more generally or more accurately understood by them, than what is an object of direct consciousness, of hourly experience, and of such high importance, as to command their constant attention.

Nevertheless, as many philosophers have been of a contrary opinion, and not content with endeavouring to explain what
needed

needed no explanation, and could admit of none, have maintained, that the relation in question is very different from what mankind have generally conceived it to be; and, in particular, that it is essentially the same with that of cause and effect in physics; it will not, I hope, be thought so absurd as at first sight it might appear, to endeavour to investigate, in a more accurate manner than has hitherto been attempted, that seemingly obvious point; and to ascertain, by a kind of evidence which has hitherto been supposed free either from fallacy or from dispute, if not the full extent, and all the particulars, at least the reality, and some of the most important and interesting circumstances of that difference which the vulgar have so generally acknowledged, and which so many philosophers have been fond of denying.

In the first place, it is obvious, not only that there is a very intimate relation between the motives and actions of men, but likewise that this relation bears a strong resemblance or affinity to that of
cause

cause and effect in physics, as well as to that of agent and action. Even the language which we commonly employ in speaking of the relation of motive and action, is in a great measure formed on these analogies.

We often inquire and speak about the causes of the actions of men, meaning the motives of them, just as we do about the causes of any occurrences in the material world. We speak currently of actions proceeding from, or produced by certain motives or causes; we speak of the influence, the power, the irresistible force of motives, just as freely as we do of expansion, fluidity, and evaporation, as proceeding from or produced by heat; or as we do of the influence or the actions of men on the objects around them, or of the influence of the sun and moon on the tides, of the power of medicines, or of the irresistible force of steam or of gunpowder.

These modes of expression, which are by no means peculiar to any one language,
nor

nor confined to a few languages, but seem to be common in all, and to have been so in all ages and nations, and which may be employed in long discourses and chains of reasoning, without producing any obscurity or embarrassment, shew plainly how close and striking the analogy is, in many obvious circumstances at least, among the different relations in question.

And as a proof that the analogy so generally acknowledged is not visionary, but very real, any man of good sense, enlightened by a little experience, may undertake with confidence, from knowing what people's motives are, to foretell what their actions will be; or, from knowing their actions, to infer what their motives have been: just as in physics, with the same kind of aid from experience, we can foretell an effect from knowing the cause; or infer the cause from knowing the effect.

Yet it cannot justly be said, that *Cause* is the *generic*, *Motive* the *specific* term; and that the latter is employed only in a more
B limited

limited sense than the former, being applied exclusively to denote those particular causes which, by influencing * the will, indirectly produce the actions of men; for mankind in general show plainly, that they conceive some further difference between the two relations in question, than merely that of *Genus* and *Species*; and that they even believe there is something in the supposed genus which is not in the supposed species; particularly the constant, and, with respect to us at least, inseparable connection between cause and effect; while the connection between motive and action is conceived to be only occasional and separable, and, in all ordinary cases, in a great measure dependent on ourselves.

* These and such like phrases I use in compliance with custom, *quem penes &c.* and because it is difficult to avoid them, and would look like affectation to attempt to avoid them. But I am aware of the impropriety and incongruity of them, as misrepresenting the nature of the will, and confounding the three different notions and relations of Agent, Cause, and Motive.

That

That such has always been the persuasion, whether right or wrong, of the bulk of mankind, whatever words or phrases they may have employed in speaking of both or either of those relations, is not in general disputed even by those who maintain that there is no such difference between them. Nor can it reasonably be disputed, though, to be sure, Mr HUME has made a very ingenious and elaborate attempt to that purpose; as the astonishment and indignation of the bulk of mankind at the doctrine of Necessity, when they first hear it, and their incredulity with respect to it even when it seems most unanswerably proved, plainly shew what is their general and natural persuasion.

It is evident, that if mankind had conceived, as some of their expressions seem to imply, that their motives were the causes of their volitions and actions, in the same sense of the word *Cause* that it has in physics; as, for instance, when we say that heat is the cause of fusion, impulse the cause of motion, the sun and moon the causes of the tides; then the doctrine

of Necessity would have been the common and popular persuasion. It would, no doubt, have been a false one, and might have been confuted by philosophers; but no other *could* have prevailed among men unacquainted with good reasoning, not aware of the importance of accurate observation and nice discrimination in all matters of science, and ignorant and even unsuspicious of any difference between the relation of motive and action and that of cause and effect in physics. They might just as well have supposed, that the relation between impulse and motion in a billiard-ball was constant, and that between heat and the melting of snow only occasional, and dependent on the good-will and pleasure of the snow.

It may even be worth while to remark, in illustration of this point, that mankind have never regarded belief as a voluntary act of the mind, or as one dependent on the choice, power, or discretion of the person believing. Various circumstances of affection or passion, or even, for example, the having laid a bet on any unknown or doubtful

doubtful point, may make it highly agreeable to believe or disbelieve, contrary to the proper evidence of such a point. But we feel it to be impossible to do so. With the strongest inclination to deceive ourselves, we are conscious that we cannot do it, if we but attend to the evidence. Now, the relation between evidence or proof of various kinds, and that act or state of the mind which is called belief, is plainly very different from that of motive and action, and from that of cause and effect in physics; yet it bears a great resemblance to both; between which there is a still greater difference than between either of them and the relation of evidence, by which all belief is regulated, independently of the choice or determination of the person believing.

It is true, that mankind in general have ever found it difficult, perhaps I should say impossible, to point out, in a satisfactory manner, any circumstance of distinction between the relation of physical cause and that of motive, though they have always considered them as somehow different,

ferent, and cannot be brought to think them the same.

The obvious circumstance of distinction or supposed difference between them, which every person is ready to point out at once, when he first hears of the question, to wit, that in the relation of motive and action, the person has the power of acting or not acting as he pleases or chooses, or according to the determinations of his will; whereas, in the relation of cause and effect, the body has no such will, power, choice, or liberty, but inevitably undergoes the change corresponding to the cause applied, is by no means satisfactory to those philosophers who have thought fit to erect themselves into a tribunal of higher authority than the voice of nature, or the common sense of mankind. Nay, though for my own part I regard the general and irresistible conviction of mankind, with respect to such a difference, as satisfactory and decisive evidence as to the general point at issue; yet I think it must in candour be owned, that it is by no means a sufficient answer to the arguments of those philosophers

phers who hold a different opinion, founded on the striking resemblance or analogy between the two relations in question. And these arguments, which appear so plausible, and have been so confidently maintained, I think can be answered completely, and in a manner strictly philosophical, only by shewing, that the two relations in question are not precisely the same, by pointing out some or all of the differences between them, and by proving that these differences are such as *necessarily* imply the presence and very frequent exertion of a self-governing or self-determining power, such as the vulgar have supposed, in living persons, and not in inanimate bodies. For no philosophers assert, that, in consequence of the influence of motives, men are, in ordinary cases, constrained or compelled to act against their will, but only that their will itself is influenced by the motives applied; or, in other words, that, according to the philosophical hypothesis of the sameness of the relation of cause and that of motive, every volition or voluntary determination of a person is truly an effect of the motive, or

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combination of motives, to which it is referred, as much as motion in a billiard-ball is the effect of impulse, and in the same sense of the term *effect* in which it is used in physics, in speaking of the changes which occur in inanimate matter, and of the relation of these changes to what are called the causes of them.

In consequence of this view of the question, several philosophers, as for instance Mr HUME and Dr PRIESTLY, have ventured to assert, that all mankind have ever been, in their thoughts and in their actions, as much convinced of the doctrine of necessity as philosophers are, and only differ from them in the mode of expressing their thoughts. Indeed Dr PRIESTLY has gone a great deal further, having asserted repeatedly, That "there is no absurdity more glaring to his understanding, than the notion of philosophical liberty."

Supposing Mr HUME's to be a fair and full account of the difference between the vulgar and the assertors of the doctrine of Necessity,

Necessity, (which however it evidently is not), it would be reasonable to ask, How it comes to pass that a distinct and accurate expression of what they always thought should to the bulk of mankind appear to denote, not merely something different from what they used to think, but something new, and false at least, if not incredible and absurd.

For my own part, after the strictest attention that I have been able to pay to the subject, both by careful reflection on my own thoughts, and by examining other men with respect to theirs, I am perfectly convinced, that the doctrine of Necessity, even as explained and asserted by Mr HUME, in what he calls his *Reconciling Project*, is altogether repugnant, not merely in words, but in thought and principle, to the natural suggestions of the human faculties, and to the general, and, if I mistake not, the irresistible conviction of mankind.

Indeed Mr HUME himself, notwithstanding the assertion which I have been

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confi-

considering, seems to have been sensible that there was some difference, in thought as well as in words, between the assertors of the doctrine of Necessity and the vulgar, with respect to the relation of Motive and Action. He pays no regard to the vulgar persuasion, as a principle in philosophy, or as having any weight in deciding the point in question; but he plainly admits it as a *phenomenon*, or matter of fact, and even acknowledges it to be a curious one, by offering an elaborate explanation of it on his own principles.

“ I have frequently considered (says he)
“ what could possibly be the reason why
“ all mankind, though they have ever,
“ without hesitation, acknowledged the
“ doctrine of Necessity, in their whole
“ practice and reasoning, have yet discovered
“ such a reluctance to acknowledge
“ it in words, and have rather shewn a
“ propensity to profess the contrary opinion.
“ The matter, I think, may be accounted for after the following manner:
“ If we examine the operations of body,
“ and the production of effects from their
“ causes,

“ causes, we shall find that all our facul-
“ ties can never carry us farther in our
“ knowledge of this relation, than barely
“ to observe, that particular objects are
“ *constantly conjoined* together, and that the
“ mind is carried, by a *customary transi-*
“ *tion*, from the appearance of one to the
“ belief of the other. But though this
“ conclusion concerning human igno-
“ rance be the result of the strictest scru-
“ tiny of the subject, men still entertain
“ a strong propensity to believe, that they
“ penetrate farther into the powers of Na-
“ ture, and perceive something like a ne-
“ cessary connection between the cause
“ and the effect. When, again, they turn
“ their reflections towards the operations
“ of their own minds, and *feel* no such con-
“ nection of the Motive and the Action;
“ they are thence apt to suppose, that there
“ is a difference between the effects which
“ result from material force, and those
“ which arise from thought and intelli-
“ gence. But being once convinced, that
“ we know nothing farther of causation
“ of any kind, than merely the *constant*
“ *conjunction* of objects, and the conse-

“quent *inference* of the mind from one to
“another, and finding that these two cir-
“cumstances are universally allowed to
“have place in voluntary actions, we may
“be more easily led to own the same ne-
“cessity common to all causes. And
“though this reasoning may contradict
“the systems of many philosophers, in
“ascribing necessity to the determinations
“of the will, we shall find, upon reflec-
“tion, that they dissent from it in words
“only, not in their real sentiment. Ne-
“cessity, according to the sense in which
“it is here taken, has never yet been re-
“jected, nor can ever, I think, be reject-
“ed by any philosopher. It may only,
“perhaps, be pretended, that the mind
“can perceive, in the operations of mat-
“ter, some farther connection between the
“cause and the effect; and a connection
“that has not place in the voluntary ac-
“tions of intelligent beings. Now, whe-
“ther it be so or not, can only appear up-
“on examination; and it is incumbent
“on these philosophers to make good their
“assertions by defining or describing that
“necessity, and pointing it out to us in
“the

“ the operations of material causes.”——
And in a subsequent passage he proceeds thus: “ It is universally allowed,
“ that nothing exists without a cause of
“ its existence; and that chance, when
“ strictly examined, is a mere negative
“ word, and means not any real power,
“ which has any where a being in nature. But it is pretended, that some
“ causes are necessary, some not necessary.
“ Here then is the advantage of definitions. Let any one *define* a cause, without comprehending, as a part of the definition, a *necessary connection* with its
“ effect; and let him shew distinctly the
“ origin of the idea, expressed by the definition, and I shall readily give up the
“ whole controversy.”

These few paragraphs of Mr HUME's Essay appear to me to contain many of the first principles of a system of false science; and to one who was disposed, and thought himself qualified for such a work, they would afford an opportunity for almost endless discussion. I shall beg leave to offer a few observations on those parts of them

them only which are most immediately connected with the subject of my Essay.

In the first place, There is a manifest ambiguity in the phrase *Necessary connection*. This indeed is acknowledged by Mr HUME himself; but is not sufficiently considered and explained by him.

The phrase *Necessary connection* may be supposed to mean a connection which from the nature of things *must* take place, or, more accurately speaking, according to the laws of human thought, *must* be conceived by us to take place; the contrary of it, or any supposition inconsistent with it, being not merely false, but either intuitively or demonstrably impossible and absurd. Of this nature are all the relations in geometry; and many relations in various other subjects; several of which necessary relations, though of the highest importance in scientific investigations, have never yet been considered with that attention which they deserve.

If Mr HUME meant that mankind have

a propensity to believe, that they perceive something like a necessary connection of this kind between the cause and the effect in the material world, he was certainly mistaken, and deceived by the ambiguity of a word.

The bulk of mankind, far from having such a belief, never heard nor ever dreamed of such a question or such a supposition; and I suspect it will be found no easy matter to make them comprehend the question, or understand the difference between a strictly necessary truth and a merely contingent truth of arbitrary appointment, which might have been otherwise if it had so pleased God.

That a few individuals have held that the ultimate facts or laws of physics with respect to the relation of cause and effect are necessary truths, as much as those of geometry, cannot be disputed. But this is of little consequence in the present question: For, besides the smallness of the number of those who have thought that the ultimate facts in physics were either self-

self-evident, or demonstrable *a priori* as necessary truths, there can be no doubt, that such an opinion, whether right or wrong, is the result of deep inquiry and reasoning: but the bulk of mankind have never been accustomed to inquire or reason on such subjects.

Though we have no reason to believe, we may for once, and for the sake of the argument to which the hypothesis leads, suppose, with Mr HUME, that mankind in general have conceived some strictly *necessary connection* between particular causes and their effects in physics, and that, feeling no such *necessary connection* between their own voluntary determinations and actions and the motives of them, they have thence been led to think, that the relation of Cause and Effect and that of Motive and Action were different, and that the former being necessary, and the latter not, voluntary agents had a kind of power or liberty in their actions which bodies had not with respect to the changes which occur in them.

It

It must be observed, that this would be a very strange and false inference from the supposed premises: For surely snow would melt with heat, a stone, when unsupported, would fall to the ground, and a billiard-ball would move on being struck, with equal certainty, and with equally little pretensions to liberty, whether the three physical laws alluded to in these three instances of cause and effect be necessary truths, like those of geometry, or only contingent truths of positive appointment, according to the will of the Supreme Being, ordering what he saw to be best. Nor would the case be different with respect to Motives and Actions, if the same relation, not of necessity, but only constant conjunction, were conceived to subsist between them.

But admitting, in compliment to Mr HUME, that all mankind believed what not one in ten thousand of them ever thought of, and that all of them with one consent drew from what they so believed an inference so palpably false, that it is scarce credible that any one individual

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should

should have drawn it, or thought of it; then I think it follows *necessarily*, that when ever a person is satisfied that there is not, or even that he has no reason to think that there is, any such *necessary connection* between particular physical causes and their effects, he must instantly become a convert to the doctrine of Necessity as explained and asserted by Mr HUME, in his reconciling project. For there would then be left no difference perceptible to him, or even conceivable by him, between the two relations which he was wont to distinguish. But this conclusion, which is an evidently necessary inference from Mr HUME's doctrine on this point, is experimentally false; therefore the doctrine of which it is a necessary inference must be erroneous.

The disavowal of any belief of a *necessary connection*, perceptible or intelligible to us, between particular physical causes and their effects, seems to be very fully implied in the modern and only successful way of conducting physical inquiries; I mean, by observation, experiment, and induction.

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This method has been followed by the most eminent philosophers who have flourished since the days of GALILEO and BACON; yet it will scarce be pretended that they have all been convinced of the necessity of human actions as maintained by Mr HUME, and consisting in the sameness of the two relations of cause and of motive; nor yet will it be said, by any reasonable man, that they have in general been so stupid as not to judge that things were the same between which they neither knew nor supposed that there was any difference.

But if a metaphysician should be found bold enough to assert either or both of those strange propositions, still it would avail nothing; for many persons of good sense, liberal education, and much knowledge, may easily be found, who are thoroughly convinced that they know nothing of any *necessary connection* between physical causes and their effects; and yet cannot be persuaded that the relation of motive and that of cause are the same, nor be brought to acquiesce in the doc-

trine of Necessity, even as defined by Mr HUME.

And even if this should be disregarded, or considered as mere prejudice, obstinacy, and stupidity, it may be fairly demonstrated, from a careful examination of the phenomena of causes and effects in physics, and of the motives and actions of men, and from a comparison of them with one another, that the two relations in question, admitting that there is no strictly *necessary connection* perceptible or intelligible to us in either of them, are yet essentially different.

Yet I think it can scarce be doubted by any one who attends to the whole tenor of Mr HUME's reasoning on this subject, that it was such a kind of *necessary connection* as has just been considered, that he conceived mankind had a propensity to believe took place in the relation of cause and effect in physics: for he always contrasts it with the relation of *constant conjunction*, and endeavours to explode the former, while he establishes the latter.

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There is indeed another sense of the phrase *Necessary connection* taken notice of by Mr HUME himself, in which alone I apprehend it has commonly been applied by mankind to the relation between physical causes and their effects; and by them supposed, I believe very rightly, to take place in it, but not in the relation of motive and action. The sense of the phrase *Necessary connection*, to which I here allude, is what Mr HUME has with much greater propriety called *regular, uniform, constant conjunction*. Other words might easily be employed to denote the same meaning; such as, inseparable connection, or, more strictly speaking, a connection which men cannot separate. But it would be very foolish to multiply words on so plain a subject. All that is meant by such phrases is, that when the *cause* is applied to the *subject*, its *effect* will always and inevitably take place; and that the body has no power either of changing its own state, or of preventing that change which the cause applied was fit to produce; that is, no power of separating a cause from its effect.

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This kind of *necessary connection*, which, in compliance with Mr HUME's very just observations, I shall henceforth call, not *necessary*, but only *uniform, regular, constant, or inseparable connection or conjunction*, mankind have not believed to take place in the relation of motive and action, as it seems to do in that of cause and effect in physics; nor ought they to believe it.

Mr HUME indeed has ventured to say, that "*This necessity* (meaning constant conjunction) *has never yet been rejected, and* "*(he thinks) never can be rejected by any philosopher,*" with respect to the motives and actions of men.

I by no means lay claim to the character of a philosopher, more especially according to what must be supposed to have been Mr HUME's sense of that term; but as a plain man, judging of a very plain subject, which is level to every capacity, I say with confidence, that even *that* kind of necessity of human actions *must* be rejected; because it is *demonstrably certain*, that there is
no

no such constant conjunction between motives and actions as there seems to be between causes and effects in physics.

“ It may only perhaps be pretended,
“ that the mind can perceive in the operations of matter some farther connection between the cause and the effect;
“ and a connection that has not place in the voluntary actions of intelligent beings.—And it is incumbent on these
“ philosophers to make good their assertion, by defining or describing that necessity, and pointing it out to us in the
“ operations of material causes.”

Mr HUME has been very rash in this argument. It is plainly one thing to perceive and be able to specify some farther connection between cause and effect in physics than what subsists between motives and the voluntary actions of men, and quite another thing to perceive any *necessary* connection in the former case. The former of these things is certain and self-evident, and even demonstrable to those who may reject the evidence of consciousness

sciousness in such a case: the latter is very doubtful, and for aught I know a question of such a kind as the human faculties cannot properly judge of.

But I do not mean in this place to offer any opinion on so difficult and so abstruse a point. It is certainly an important one, and deserves to be discussed, were it only that we may know whether it be within the reach of our faculties or not: for many plausible things may be said on both sides of this preliminary question.

Instead, therefore, of its being incumbent on those (no matter whether philosophers or not) who deny Mr HUME's doctrine on this subject, to define and to point out any *necessity* in the relation of cause and effect, or something *farther* in it than that constant conjunction which Mr HUME acknowledges, it is perfectly sufficient, I apprehend, that they point out or define something *less* than that constant conjunction in the relation of motive and action. And this I am sure may very easily

easily be done; and it is part of what I undertake to do myself.

“ Let any one define a cause without
“ comprehending as a part of the defini-
“ tion a necessary connection with its ef-
“ fect, and let him shew distinctly the ori-
“ gin of the idea expressed by the defini-
“ tion, and I shall readily give up the
“ whole controversy.”

There is something very extraordinary, and to me I must own incomprehensible, in this kind of defiance. Mr HUME did not, and could not surely, mean, that it was impossible, or even difficult, to give a definition of a cause, without including necessary connection with its effect; for he has given two or three such definitions himself. And he must have known, that though it may be difficult or impossible to give a good definition of a cause, yet nothing can be easier than to substitute, in any definition of it, the words *constant, uniform, regular, or inseparable conjunction*, for the words *necessary connection*. And this, for my own part, I am very willing to do :

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nor am I acquainted with any man of science who would have any objections to do the same.

As to the insinuation, that it is incumbent on a person who gives any definition of a cause which does not comprehend a necessary connection with its effect, to give an account how he came by such a notion, or, in Mr HUME's language, to shew distinctly the origin of the idea expressed by the definition, perhaps it would be sufficient to observe, that it is a very superfluous, and almost a ridiculous piece of caution, to guard against an impossible danger: I mean, the being imposed on by a false *idea*; that is, by something pretending to be an *idea*, but really not one. A definition that expresses the meaning of the person who gives it, whether right or wrong, nay the proper, that is, the intelligible and consistent use of a word, is complete proof, that the person giving the definition, or using the word, had some thought, notion, or *idea*, corresponding to it. And Mr HUME, or any who have adopted his system, would do well to acquiesce

quiesce in the existence, though perhaps not in the justness or reasonableness of such an *idea*, and to take it for granted that it was copied in due form from a corresponding impression, (for this is what Mr HUME considers as the only origin of an idea). The want of such an *impression* corresponding to any idea, may well shake the whole fabric of Mr HUME's philosophy, by shewing, either that we may have *ideas* which are not copied from impressions, or else that we may have objects of knowledge which are neither impressions nor ideas; but can never have the smallest tendency to convince any man in his senses, that he does not understand a definition which he gives in plain language, or a word which he uses in its common acceptation. Now, to have such an understanding or conception (even according to Mr HUME's own acknowledgement) is either the same with having an *idea*, or implies the having one. And if it be thought that this notion, conception, *idea*, or thought, is improper or groundless, as having nothing corresponding to it in nature, this may be shewn by careful investigation of the

things to which it relates; and when this is shewn, the notion must be given up, like the *vortices* of DES CARTES, or the philosophical doctrine of ideas.

SECT.

S E C T. II.

Remarks on the commonly assumed principle, That nothing exists, or that no event comes to pass, without a cause.—Obscurity and ambiguity of this principle, from the vague meaning of the term Cause.—According to the extensive, generic, metaphysical sense of the term Cause, it must be admitted as universally and necessarily true;—but then it bears no relation to the question of Liberty and Necessity.—In the limited, specific, physical sense of the term Cause, it must not be admitted, 1st, as being almost a begging of the question; 2dly, as being unsupported by any evidence.—The question of the universality of Motives for every Action to be avoided, as requiring an appeal to consciousness.—Those Actions alone to be considered, and compared with physical Effects, for which there are evident and acknowledged Motives.

ANOTHER argument urged by Mr HUME on this point appears to me to deserve particular attention; not as being

ing new, or peculiar to him, but as being commonly insisted on by those philosophers who have espoused the same side of this question that he has done; which implies two things with respect to it: 1st, That it has very generally appeared to philosophers plausible at least, if not absolutely satisfactory and conclusive; 2^{dly}, That no complete answer or refutation has yet been given to it by those men of more vulgar understandings, for whose instruction and conviction it was intended, and has often been urged, but in vain.

“It is universally admitted,” says Mr HUME, “that nothing exists without a cause of its existence.”

Before this proposition, which is said to be universally admitted, can rationally be either admitted or denied, it is necessary that it be first clearly understood; which I will venture to say it has not in general been, either by those who asserted, or by those who admitted it.

It must be observed, in the *first* place,
That,

That, whatever may be its most proper and philosophical meaning, the most common and popular meaning of the word *Cause*, (that is to say, the notion usually denoted by it, and therefore most likely first to occur to any ordinary person to whom such an argument may be addressed,) does not relate to mere *existence*, as it is made to do in this argument or proposition, but to *event*; and hardly to every *event*, but only to *change*, not to the beginning or to the end of *existence*, that is, to *creation* or *annihilation*; nay, hardly to every kind of *change*, but to those *changes* only which come to pass in beings that do not produce them in themselves, and in whom they are conceived to come to pass in consequence of the influence of something *else*, or of a certain relation between the subject in which the change occurs, and something else, to which something else the name *Cause* is usually given, as that of effect is to the change proceeding from it.

This alteration, and the substitution of a new correlative to the term *Cause*, implies

plies an alteration in the conception of the relation expressed by it; of which an attentive and careful reasoner would probably be sensible, and might rationally scruple to admit such a proposition, at least till he had it fully explained and illustrated to him by proper definitions and examples. And if he found, which I presume would be the case, that the usual meaning of the term *Cause* was either extended, or limited, or perverted, in some of those examples, or that it was different in the different examples; then, instead of either admitting or denying the proposition in question, he ought undoubtedly to require that those different meanings should be expressed distinctly and accurately in separate propositions, that he might know which of them, or whether any of them, were to be either admitted or denied.

But as this impropriety of making the term and the notion of *Cause* relate to mere existence, is no peculiar fault of Mr HUME, being common to him and many other philosophers, and as a complete discussion

cussion of it would require a much longer investigation than would be proper in this place, I shall not here insist any further on it.

Setting aside, therefore, that circumstance of incongruity between the notion of cause and that of mere existence, and supposing Mr HUME, and those other philosophers who have espoused the same side of the question with him, to have meant to have said only, “ That it is universally admitted, “ that there is no event, that is, no beginning of existence, no end of existence, no change of the state or mode of existence, not even the action of a living sentient intelligent being, without “ a cause,” which, from the general tenor of their reasonings, ought in candour to be regarded as their meaning; still there would be much need of an explanation of the term *Cause*, that is, a precise specification of the notion expressed by it; and till such explanation were given of it, either by strict logical definition, or by very ample illustration, and many examples, the proposition in question could not

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with any propriety be either admitted or denied.

For instance, it might reasonably be asked, Is the word *Cause* employed in that general fourfold sense mentioned by ARISTOTLE, and applied equally to the essence or form of a being, to the matter of it, to the efficient or agent, and to the motive, or purpose, or final cause? Or is it employed in its more common and limited acceptation, as generally used in physics, and indeed in popular discourse, as when we say, "Heat is the cause of expansion," excluding all the other meanings of it, and particularly that of the agent? Or is it employed in that more limited sense in which it hath been defined and used by several philosophers, to denote exclusively the agent, in contradistinction to the physical cause? Or is it used to express the vague notion insinuated by ARISTOTLE's *To αἰτία*, comprehending all these already mentioned, and many more; for example, what the parts are to the whole, what a right angle in a triangle is to the proportion between the squares

squares of the sides of it, what the absence of a pilot is to a shipwreck, what the seed is to a plant, what a father is to his son, what the removal of an opposing cause is to any event or effect? &c. &c.

If it be used in the more vague and comprehensive meaning expressed in the first and fourth of these queries, it would signify nothing as to the question about the relation of motive and action, or the necessity of human actions, though it should be admitted that every event, even a voluntary action, had a cause. For whatever might be the relation between motive and action, or whether in any case the agent acted without motives, or according to motives, or in opposition to all motives, still we should have no event nor action without a cause; the agent would be the cause of it; the efficient; *To εἶναι*; that without which it would not (or could not) have been what it was. According to the meaning alluded to in the fourth query, even the removal of an opposing cause should be a sufficient cause for an event: For instance, the breaking of a rope, the cause of any thing which

hung by it falling to the ground. But it is very plain that Mr HUME could not have such a meaning in view: we therefore may safely set that supposition aside.

As little could he have in view the meaning expressed in the third query, in which meaning Dr REID (I own I think with too little regard to the common use and application of the word *Cause*) hath employed it in arguing this question, *Essays on the Active Powers, passim*; as where he says, after admitting that every thing must have a cause, That in the case of voluntary actions, it is not the motive, but the person, that is the cause of them. This meaning of the term *Cause*, to wit, a Being having power (and optional or discretionary power) to produce or not to produce a certain change, is not only evidently different from Mr HUME's, but completely repugnant to his whole system. We may therefore set it aside too.

There remains, then, only the second of the meanings stated in the queries to be considered; that which the term *Cause* has
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in physics, and most commonly in popular discourse.

According to this meaning of the term *Cause*, the proposition or principle supposed to be universally admitted amounts precisely to this: "That nothing exists, that no event comes to pass, that no action is done, that has not, or had not at least, something standing in the very same relation to it that any cause in physics stands in to its effect: For instance, impulse to the motion of a body that was free to move, or heat to expansion, to fusion, or to evaporation."

i.e. a necessary prodg.

From the general tenor of all Mr HUME's reasonings on this subject, from the ultimate conclusions that he seems to have believed he had established, from the examples and illustrations which he hath given, and above all from the mention of the specific circumstance of constant conjunction, so often and so strongly insisted on by him as the chief or only thing that we knew, or from the nature of our faculties could know, with respect either to
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the relation of physical cause and effect, or of motive and action, I think it cannot reasonably be doubted, that his meaning by the proposition in question was precisely that which is more fully and clearly stated in the preceding paragraph.

If such be the meaning of it, the answer to it must be very plain and easy: That assumed principle, far from being universally admitted, has not even been heard or thought of by one in ten thousand of the human race. And when it is clearly stated to them, it may reasonably be doubted, whether one in ten thousand of them will admit it; and it cannot be doubted by those who attend accurately to the different relations among things and events which we are able to perceive and judge of, that it ought not to be admitted by any person. Mankind naturally conceive the relations of agent, motive, and physical cause, to be very different in some respects, though the same in others. And, in particular, they seem very generally to have believed, that their own voluntary determinations and actions (in one sense
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of the term *Action*) do not stand in that relation to any person or thing whatever. The former of these points appears very clearly from the evidence of language, even setting aside all regard to consciousness, or all faith in mens direct attention to their own thoughts. The latter of them appears very plainly from the general repugnance of men to admit, when first stated to them, the philosophical doctrine of Necessity, as consisting in the perfect sameness of the relation of motive with that of physical cause. We neither know nor conceive any other cause, or *το εξ' ου*, for our own determinations and direct simple actions, than ourselves, and the motives of them. It is self-evident, that the relation between the person himself, or agent, and the action, is widely different from that of physical cause and effect; and if it were supposed that the action stood in the relation of physical effect to any cause, there could remain nothing supposed or conceived by us, but the motive, that might be regarded as such a cause of the determination and action. And this accordingly is the very doctrine maintained with

with respect to motives and actions by Mr LEIBNITZ, Mr HUME, Dr PRIESTLY, and many other modern philosophers: and this doctrine Mr HUME has endeavoured to show to be not inconsistent with the common notion of the relation of motive and action; in which attempt I do not think he has by any means succeeded. There is among mankind a very general, and what I think may be shewn to be a well-founded, repugnance to that doctrine, as well as to the principle, (as already explained by a sort of paraphrase), that Mr HUME would assume as universally admitted, which would imply its being self-evident.

Indeed that principle, (according to his meaning of the term *Cause*), which he is for assuming as universally admitted, is so very nearly the same with the ultimate conclusion or doctrine which he meant to establish by means of it, that not only the latter is evidently implied in the former, but it even requires much care and attention to distinguish the one from the other; which I am convinced Mr HUME
had

had no thoughts of ever doing; and therefore, as to him, the assuming of that very plausible principle was no better than a complete begging of the question which he wanted to settle.

In strict reasoning, to be sure, it was not just begging the question; for it might be admitted, without admitting that the motive was the cause of the action; of which it might be supposed that either the agent or some third thing, unnamed and unthought of, was properly the cause. But as Mr HUME does not appear ever to have thought of these suppositions, and as they are quite repugnant to his whole system, they are with respect to his assumed principle as if they were not.

This long discussion seemed necessary in order to remove that obscurity with respect to the principle in question which proceeds from the ambiguity of the term *Cause* employed in expressing it; and thereby enable us either to deny it without contradicting the universal and irresistible conviction of mankind, that certain things

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must

must have a cause, or to admit it without giving up the ultimate point at issue, without even the shadow of a reason for so doing.

In Mr HUME's sense of the term *Cause*, the principle, That nothing exists without a cause, must be denied; first, as being, in other words, a taking for granted of a much disputed point which he had undertaken to prove; secondly, as being unsupported by any evidence of observation, experiment, induction, consciousness, intuition, or demonstration.

In that more extensive and even vague sense of the term *Cause*, for which authority may be found both in common discourse and in the writings and conversation of many philosophers, Mr HUME's assumed principle is to be admitted; but under a kind of protest, and with certification, that in it nothing is admitted or implied with respect either to the sameness or the difference of the relations of agent and action, motive and action, or physical cause and effect; these questions
remaining

remaining to be settled afterwards in the only way in which they can be settled; by strict induction from accurate observations and experiments with respect both to the laws of human thought, and to the phenomena or matters of fact, in human actions, and the motives of them, and in physical effects, and the causes of them.

If by the assumed principle, "That nothing exists without a cause of its existence," Mr HUME, and those other philosophers who are fond of maintaining it as an important axiom in science, mean no more than that there is no physical effect, either in things inanimate or in living creatures, without a physical cause; and that there is no beginning of existence, or creation, without a creator; no action, without an agent; no speaking, without a speaker; no poem, without a poet; no picture, without a painter; no building, without a builder; no contrivance, without a contriver; no work of design and intelligence, without an intelligent author; I think the proposition

should be admitted without reserve, as not only universally but necessarily true, as much as any axiom of geometry : I neither know of any exception to it, nor can I believe there ever should be one : nor have I any reason to think that any man of sense (putting out of the question science or knowledge acquired by study) can be of a different opinion.

If any philosopher wishes particularly (no matter for what reason) to apply the term *Cause*, not in a metaphorical meaning, which might be suggested by various circumstances of resemblance or analogy, but in a strictly literal and scientific meaning, to the Creator, the agent, the poet, the speaker, the intelligent author of any kind, as well as to the motive, and to the physical cause, I think he should be gratified in his wish : for it is folly to dispute about a word ; and no evil can arise from complying with such a request, provided only we attend to the nature and all the circumstances of it.

According to the unalterable laws of
human

human thought, and the established principles of all languages, the term *Cause*, applied in that way, would be a generic term, expressing only what was in common among all the things called *Causes*, but nothing peculiar to any one of them, whether already known or hereafter to be discovered. Just as the terms *Being*, *Animal*, *Beast*, express only things common to certain comprehensive *genera*, but nothing peculiar to the several inferior *genera* of beasts.

If there should be occasion (as in the present inquiry there is) to attend to the more minute or specific differences among the several things comprehended under the *genus Cause*, it would be highly expedient, or rather absolutely necessary, to give to each of them a specific name, were it only an addition to the generic name *Cause*: For example, to call the Creator the first cause, or the creative cause, the agent the efficient cause, the author the intelligent cause, and that which is commonly in physics termed simply a *Cause*, the physical cause. Then, and not before, it would
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be possible to reason about the specific differences of them without any risk of obscurity, ambiguity, or misunderstanding. But were a philosopher, on the strength of having found or got the general name of *Cause* applied to all those things, to deny, or to disregard the specific differences among them, he would be acting as absurdly as one who should maintain, that there was no difference between a father and a mother, because they are both termed Parents; and none between a bird and a fish, because both are acknowledged to be animals.

On the same principle should he propose, like ARISTOTLE, to give the name of *Cause* to the removal or ceasing of an opposing cause, he might be gratified in it without any inconvenience in science, or in reasoning about causes, provided only due attention were given to the difference between such a kind of cause and all other kinds of causes, and a different specific or *trivial* name were employed to denote it, and distinguish it from them: For example, if it were called an *occasional Cause*.

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This term I suggest merely by way of illustration; not as thinking it a proper one: it would be very improper to use it in this sense, because it has already got another meaning well known in medicine. But any specific addition to the term, not already used in a different sense, might be used to denote this particular kind of cause.

On the same conditions, too, the motive to any action may be termed the *Cause* of it; for example, if it be called the *Final Cause*. This has often been done: for, in consequence of the close and striking analogy between motives and those things most commonly termed *Causes*, (to wit, physical causes), the same general name has frequently been applied to both; and such a specific addition to it has already been found convenient or necessary in discourse and reasoning.

But with respect to this last species of cause, something further must be attended to. If it be thought right (of which I can have no doubt) to say, that in the
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most ordinary actions of men, and more especially in all deliberate and important actions, there is some final cause for the action, that is, some motive according to which the person acted, of which motive or final cause the person is conscious, and which he therefore can specify, all this *must* be admitted as intuitively certain, and acknowledged by every intelligent and candid person.

But if any person would assume as a self-evident principle, (as many are eager to do), That for every action, without exception, there *is* and *must be* a motive or final cause, just as there must be an agent or efficient cause; or as for every change of state in a being that does not change its own state, there must be a physical cause; or as for the beginning of existence, there must be a creator; this ought not to be admitted; for it is at best doubtful, and a matter of keen dispute among men of seemingly competent judgement, and knowledge, and candour, and opportunities of observing. Thus, while some say that they feel it so universally in themselves,
and

and firmly believe it to be so in all mankind; others, on the contrary, as positively aver, that they are conscious of no such motive, and can hardly conceive any such, for choosing one of several equal chances, one card out of a pack, one guinea out of a heap, &c. which yet they can do with perfect ease whenever they are desired to do so. While this question remains undecided, and even so direct a contradiction about it continues among men of science, it would surely be wrong to take for granted either opinion. It must be left for future discussion, if it shall be thought to deserve any; which I own I think it will. For though it be almost (or altogether, as some will think) frivolous in morals, or in judging of the merit of human actions in point of wisdom or virtue, it may be of great importance in the history and philosophy of the human mind: it may be of as much consequence in this branch of science as the *inertia* of body is in physics.

I cannot, however, undertake the discussion of it consistently with my plan of

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neither

neither making nor admitting any appeal to consciousness; which for many reasons I anxiously wish to avoid: and it is certainly difficult, if not impossible, to settle it without making some such appeal.

Possibly the investigation of those other points relating to the same subject, which I think may be fully ascertained without any appeal to consciousness, will throw some light on it, and put us in the way of settling it without dispute or contradiction.

For it must be observed, that even if it should be granted, that for every action there must be a motive as well as an agent, still the important question of the nature of the relation of motive and action, and its being the same with, or different from, that of physical cause and effect, would remain entire.

For we are not to consider and reason about Beings destitute of appetites, passions, desires, judgements of duty, honour, interest, and all other considerations usually
termed

termed *Motives* ; nor yet about actions, that either bear no relation at all to such motives, or are constantly in opposition to them ; we are to consider men having such principles of action, and actions proceeding from and referable to such motives : For example, actions according to the only motive, or the concurrent motives, that are present, or, as we commonly express it, applied to the person or agent ; and when different or directly opposing motives are applied at the same time, according to some, and in opposition to others of them. And it is just the difference between such instances of actions proceeding from or related to motives and instances of what are commonly called *Causes* and *Effects* in physics which I propose to *demonstrate*, and the necessary inferences from that difference that I propose to trace in the following sections of this Essay.

S E C T. III.

*General Plan of the reasoning employed in this Essay;—to admit the doctrine of Necessity unquestioned as a principle;—to reason from it by necessary consequences, ad falsum and ad absurdum.—Justification of the use of Mathematical reasoning on this subject;—possibility of applying it;—advantages of it,—simplicity,—perspicuity,—precision,—comprehensiveness;—certainty of its principles;—confidence in the perception of necessary relation at every step, and consequently in the whole of it.—Distinctness of the notion of Quantity, both proper and improper;—the various relations of Quantity familiar to us.—Whole chain of reasoning before us at once;—improbability of committing any error in it;—facility and certainty of detecting any error that may be committed in it;—impossibility of cavilling or disputing about such an error.—Prerogative of Mathematical reasoning;—autho-
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rity of it higher than that of unassisted judgement, or of any other mode of reasoning;—to be tried only as good or bad of its kind;—if good, it is supreme and conclusive.

THOUGH I can by no means acquiesce in Mr HUME's opinions and reasonings concerning the nature of the relation between motives and actions, and the perfect resemblance between it and the relation of cause and effect in physics, and can never admit the philosophical doctrine of the necessity of human actions as explained and asserted by him; yet I must do Mr HUME the justice to own, that I have found in his Essay on Liberty and Necessity one general proposition or principle, which appears to me such plain and obvious good sense, that I shall without scruple adopt it as the fundamental principle of my own reasonings on the same subject, convinced that no man of sense can ever seriously call it in question, or ever think of dissenting from those conclusions to which it leads.

“ What-

“ Whatever definition we may give of
“ Liberty, (says this celebrated philoso-
“ pher), we should be careful to observe
“ two requisite circumstances : First, That
“ it be consistent with plain matter of
“ fact; secondly, That it be consistent
“ with itself. If we observe these circum-
“ stances, and render our definition in-
“ telligible, I am persuaded that all man-
“ kind will be found of one opinion con-
“ cerning it.”

I confess I have not penetration enough to discover, in the common notion of the liberty of human actions, either that inconsistency with plain matter of fact, or that inconsistency with itself, to which Mr HUME seems to allude so confidently. And I am very sure that he hath pointed out no such inconsistency; and that it was scarce possible he should have done so, even if there were an inconsistency between them; for this reason, among others, that he does not seem to have known, nor ever to have taken the trouble to inquire, what the common notion of Liberty is. But there can be no doubt, that a philosopher,
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even of the greatest genius, especially if he were disposed and accustomed to disregard the common opinions and notions of mankind, might, in consequence of careless or prejudiced observation, form to himself a notion, and give an account or definition of the popular conception and belief of the liberty of human actions, which should obviously labour under one or both of those grievous defects.

Such undoubtedly would be the case with any definition of Liberty that should correspond to what Mr HUME, in the following passages, insinuates, for I observe he does not directly assert it, to be the common notion on that subject.

“ For what is meant by liberty when
“ applied to voluntary actions? We can-
“ not surely mean, that actions have so
“ little connection with motives, inclina-
“ tions, and circumstances, that one does
“ not follow with a certain degree of uni-
“ formity from the other: for these are
“ plain and acknowledged facts.”—They
surely are so; and there would be good
reason

reason to call in question the veracity, as well as the understanding of any person who should venture to deny them.

“ Nor have philosophers ever entertain-
“ ed a different opinion from the people
“ in this particular: For, not to mention
“ that almost every action of their life
“ supposes that opinion, there are even
“ few of the speculative parts of learning
“ to which it is not essential. What would
“ become of history, had we not a de-
“ pendence on the veracity of the histo-
“ rian, according to the experience which
“ we have had of mankind? How could
“ politics be a science, if laws and forms
“ of government had not a uniform in-
“ fluence upon society? Where would be
“ the foundation of *morals*, if particular
“ characters had no certain or determi-
“ nate power to produce particular senti-
“ ments, and if these sentiments had no
“ constant operation on actions? And
“ with what pretence could we employ our
“ *criticism* upon any poet or polite author,
“ if we could not pronounce the conduct
“ and sentiments of his actors, either na-
“ tural

“ tural or unnatural to such characters,
“ and in such circumstances? It seems
“ almost impossible, therefore, to engage,
“ either in science or action of any kind,
“ without acknowledging the doctrine of
“ Necessity, and this inference from mo-
“ tives to voluntary actions, from charac-
“ ters to conduct.

“ And indeed, when we consider how
“ aptly *natural* and *moral* evidence link to-
“ gether, and form only one chain of ar-
“ gument, we shall make no scruple to al-
“ low, that they are of the same nature,
“ and derived from the same principles.
“ A prisoner who has neither money nor
“ interest, discovers the impossibility of
“ his escape, as well when he considers
“ the obstinacy of the gaoler, as the walls
“ and bars with which he is surrounded;
“ and in all attempts for his freedom,
“ chuses rather to work upon the stone
“ and iron of the one, than upon the in-
“ flexible nature of the other. The same
“ prisoner, when conducted to the scaf-
“ fold, foresees his death as certainly from
“ the constancy and fidelity of his guards,
“ as from the operation of the ax or
“ wheel,

“ wheel. His mind runs along a certain
“ train of ideas; the refusal of the soldiers
“ to consent to his escape; the action of
“ the executioner; the separation of the
“ head and body; bleeding, convulsive
“ motions, and death. Here is a con-
“ nected chain of natural causes and vo-
“ luntary actions; but the mind feels no
“ difference between them, in passing from
“ one link to another; nor is less certain
“ of the future event than if it were con-
“ nected with the objects present to the
“ memory or senses, by a train of causes,
“ cemented together by what we are plea-
“ sed to call a *physical* Necessity. The
“ same experienced union has the same
“ effect on the mind, whether the united
“ objects be motives, volition, and actions,
“ or figure and motion. We may change
“ the names of things; but their nature
“ and their operation on the understand-
“ ing never change.”

“ A manufacturer reckons upon the la-
“ bour of his servants, for the execution
“ of any work, as much as upon the tools
“ which he employs, and would be equal-
“ ly

“ ly surpris’d were his expectations dis-
“ appointed. In short, this experimental
“ inference and reasoning concerning the
“ actions of others, enters so much into
“ human life, that no man, while awake,
“ is even a moment without employing
“ it. Have we not reason, therefore, to
“ affirm, that all mankind have always a-
“ greed in the doctrine of Necessity, ac-
“ cording to the foregoing definition and
“ explication of it ?

“ A man who at noon leaves his purse
“ full of gold on the pavement at Cha-
“ ring-Cross, may as well expect that it
“ shall fly away like a feather, as that he
“ will find it untouched an hour after.”

The case of the prisoner endeavouring to make his escape, is put by Mr HUME very ingeniously, but I think not quite fairly, even for his own side of the question. A wretch who has neither money nor interest has not the proper instruments to work upon an obstinate gaoler, even according to Mr HUME’s own system; but setting aside this nicety, and suppo-

sing a felon to have both money to work on his gaoler, and files, and chissels, and hammers, to work on his fetters, and on the walls of his prison, I will venture to say, though at first it must appear a paradox, that he shews more knowledge of the relation of cause and effect and of that of motive and action, nay that he even reasons more closely and justly from the principle of the constant conjunction of cause and effect in physics, than ever Mr HUME did, when, all other circumstances being equal, he endeavours to employ the file and the chissel on the iron and stone, rather than the gold on the gaoler: For, knowing the conjunction of cause and effect to be constant, he is sure that every stroke of his file and of his chissel will have its effect, and of course bring him nearer to his purpose. If he has time enough, and is not interfered with, nor opposed in any other way, he is certain of accomplishing his escape; but knowing, or at least believing, that the relation of motive and action is not a constant, but an occasional and separable conjunction, and that it depends on the person to whom

a motive is applied, whether it shall be conjoined with its action or not, he is uncertain of gaining his purpose by offering to bribe his gaoler; and he knows that he may make a thousand offers without advancing in the least his desired escape. But this important difference between the two relations in question is to be illustrated more fully in the sequel.

All these remarks and reasonings of Mr HUME plainly proceed on the tacitly assumed principle, That there is no medium between that specific relation of constant conjunction between motives and actions for which he contends, and no relation or connection at all between them; and as the latter supposition is notoriously false, and very fully and clearly proved by him to be so, he seems to have concluded with confidence, that the former must be true; especially as the instances in favour of it are innumerable. But we might have expected that a moment's reflection would have satisfied the author of the History of England, that there might be various relations among things, besides that
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of constant conjunction, and such relations as men might reason about as distinctly and accurately, though not in the same manner, nor on the same principles, as they reason about the necessary relations in geometry, the accidental relation of priority and succession in chronology, the constant conjunction of cause and effect in physics, the familiar relations of moral duty, or of civil intercourse, or the various relations of resemblance, of analogy, or of contrariety; and a few accurate experiments, or even unprejudiced observations, might have satisfied the philosopher that the relation in question was by no means a constant conjunction; and this without in the least encroaching on the prerogative of a metaphysician, to disregard all vulgar opinions, even though the natural suggestions of the human faculties.

The general principle, however, expressed in the passage first quoted from Mr HUME's Essay on this subject, surely admits of no denial, and scarce requires any commentary. I shall therefore only say,

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as an expression of my fullest assent to it, that I conceive that every definition, explanation, or doctrine, of Liberty, of Necessity, or of any thing else, which either directly, or in its necessary consequences, is inconsistent with plain matter of fact, must be false; and that every such doctrine, which either directly, or in its necessary consequences, is inconsistent with itself, must be absurd; even though it should be the favourite doctrine of philosophers, nay, though it should be the general and natural persuasion of mankind.

Now, these two circumstances, inconsistency with plain matter of fact, and inconsistency with itself, are the very defects in the philosophical doctrine of the necessity of human actions, as commonly maintained on the principle of their being the effects of motives, and as modified, and explained, and asserted by Mr HUME, which I perceive, and undertake to *demonstrate*.

For as to the other more glaring defect of
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it, I mean its inconfistence with the natural and uniform conviction of mankind, or what is called their common sense, I know that it must go for nothing in this controversy; and therefore I shall never appeal to it. Indeed there are strong reasons for thinking that the repugnance of the doctrine of Necessity to common sense has been the chief recommendation of it. Nay, I shall never even venture to appeal to the testimony of consciousness, but, on the contrary, avoid with the utmost care every case and every argument which either directly or indirectly requires such an appeal: for though consciousness may seem the natural tribunal in such a question as that of Liberty and Necessity, and is perhaps the only one that can decide some points relating to it; yet as different persons have given contradictory accounts of its decision, it is manifest, that either there must be a wonderful and irreconcilable difference between the judgements of different men, with respect to one of the simplest and most immediate objects of knowledge, or else that there has been very gross prevarication on one side or the other

other in this controversy; and whichever of these things be the case, it must be either needless or foolish to appeal to so variable or so corrupted a tribunal as that of consciousness: nor is there, for the present purpose, any occasion to make such an appeal; for it is not proposed to prove directly any thing to be true, but only to prove some things to be false which have been asserted as truths; and when these are proved to be false, the direct contrary of them is at the same time proved to be true. Now, this may be done, not only without appealing, but without ever paying any regard to consciousness, or common sense; merely by reasoning through necessary consequences from the principles which are asserted by some philosophers, but denied by the vulgar, to conclusions which are notoriously false or absurd. So that, on this principle, the only arguments which I shall have occasion to urge, or shall ever presume to offer, against the doctrine of Necessity, shall be such as would be sufficient to prove it to be false, and *demonstrate* it to be absurd, if it had been the common and popular

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persuasion, and as natural to mankind, and as universal among them, as the vulgar belief that the sun moves every day from east to west.

It will no doubt appear extraordinary, and perhaps reprehensible, that I should venture to employ expressions like these on such a subject, and that I should have the arrogance to think that I can demonstrate the opinion which I espouse, in opposition to the sentiments, the reasonings, and the supposed demonstrations, of many of the most acute and enlightened philosophers that the world has ever seen.

My reason for employing the term *demonstration* so confidently must appear still more extraordinary, namely, that I propose to demonstrate the falsity and absurdity of the doctrine of Necessity, on mathematical principles, in mathematical form, partly by means of algebraical *formulae*, partly with the help of diagrams.

But if this circumstance be duly considered,

dered, I trust it will vindicate me from any suspicion of arrogance. I hope I shall never incur the censure of contemning the talents or knowledge of the many great philosophers who have held an opinion different from mine on this point, nor of laying claim to superior talents or knowledge myself; yet I think I may be certain, that on the point at present in question I am in the right, and they in the wrong, when I employ in the investigation of it an instrument or assistance, and I believe an *infallible* one, not of my invention, but of general and long established use, which they had not thought of employing. *Nec manus nuda, nec intellectus sibi permissus, multum valet: Instrumentis et auxiliis res perficitur; quibus opus est non minus ad intellectum quam ad manum. Atque ut instrumenta manûs motum aut cient aut regunt; ita et instrumenta mentis intellectui aut suggerunt, aut cavent; BACON, Nov. Org. 1. 2.* This sentiment, which is a just and highly important one, is frequently and strongly inculcated by BACON, and illustrated very happily by the familiar comparison of the use of the ruler

and compasses to draw a straight line or a circle. A man must have a wonderful and almost incredible superiority over others, who can draw a circle, or a straight line, with his unassisted hand; but with the help of the compasses and ruler, any man, or any child, can easily draw a straight line or a circle, and may with confidence, and without incurring the charge of arrogance, undertake to do so, as well as there is any occasion, or as well as any other person could, and better, or at least more certainly, than any person who would not make use of the same kind of assistance.

In like manner, a person who makes no pretensions to any extraordinary endowments, either of body or mind, but who, with the help of a telescope or a microscope, sees the eclipses of Jupiter's satellites, or the circulation of the blood in the limb of an insect, may without arrogance disregard the assertions even of the greatest philosophers, if any should be found so unreasonable as to deny the reality of those things, because they had not been
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able to see them, either with their naked eyes, or with such glasses as they had been accustomed to use. Such philosophers, it may be presumed, would hardly escape censure for their arrogance and their obstinacy.

The same may be said in justification of the confidence of one of ordinary judgment, and moderate chemical knowledge, who, after carefully examining two fossils by a variety of experiments, should pronounce them essentially different, in opposition to the opinion of the greatest chemists in the world, who, without such an examination of them, and plainly on the strength of their obvious resemblance, had pronounced them to be the same.

Still nearer to my situation, in the present case, is that of an accountant or a land-measurer, who, after examining a complicated account, or surveying an estate, can swear with confidence to the exact state of the account, or the precise extent of the estate, though in opposition to the previous, and perhaps most positive judgement

judgement of many persons of much superior talents and knowledge, who had not taken the same means to ascertain the points in dispute.

And nearest of all to my situation is that of the geometer and the mechanical philosopher, who, from a few simple self-evident axioms, or from these and a few simple laws of Nature, ascertained by observation and experiment, demonstrate many important necessary consequences, either in pure abstract mathematics, or in physical science.

Indeed I acknowledge no other difference in kind, whatever there be in extent and importance, between the mode of reasoning employed by Sir ISAAC NEWTON in his *Principia*, and that which is employed in the following sections, than that his is direct, mine indirect, or *ad absurdum*. He reasons from principles that are just, by necessary consequences, to inferences, which are and must be true, and will readily be admitted by all who understand them. I reason from principles
which

which I distrust, but still by necessary consequences, to conclusions, some of which are *false*, and others *absurd*, and none of which ought to be admitted; and of course the principles from which they are derived must be given up. This method, though not always the most eligible, is acknowledged to be of equal authority with the other in mathematical science, and is almost as often employed. It has even some very important advantages in particular cases; as in the present: it precludes many disputes concerning what should be assumed as first principles or evident facts. I ask for nothing of that kind, but take the doctrine of Necessity either as stated by its most zealous assertors, or in any way that it can be stated, without admitting that principle which mankind in general believe, and which so many philosophers have denied; and from it, and a few of the plainest axioms of geometry, which no body does or can dispute, draw many inferences, some of which are palpably *absurd*, and others so notoriously *false*, that I believe few people will think it necessary to put them to the
test

test of experiment. But this, if required, may easily be done.

Nor must it be thought a superfluous labour to point out several such *false* or *absurd* inferences from the doctrine in question. Any one absurdity, fairly demonstrated by necessary inferences from it, is complete proof that the doctrine is erroneous. But there may be various hypothetical modifications of or additions to the fundamental principle of the doctrine of Necessity; and as the very same conclusions do not follow from all of them, and as all of them are to be refuted, it is necessary to trace the consequences of each of them, by demonstrative reasoning, to some conclusion that is either false or absurd; and from the peculiar nature of the subject of the reasoning, it becomes necessary to illustrate particularly every such conclusion.

Nor is it by any means superfluous, to consider those necessary inferences from the principle in question which are only *false*, but possible, as well as those which are *absurd*

fiurd and impossible. The consideration of those that are only *false* serves a very curious and even important purpose in this inquiry. It enables us to ascertain the nature of that deception, and confusion of thought, or rather of words, on this subject, in which so many ingenious men have been bewildered.

When from any principle, whether seriously asserted as true, or only assumed for the sake of argument, a conclusion is deduced by necessary inferences, which conclusion is either absurd and impossible, or only known experimentally to be false, as it *cannot* be admitted, the principle must be given up; the person reasoned with has no choice left him.

But when the conclusion so demonstrated is neither absurd nor known experimentally to be false, what is to be done? Is the person reasoned with to admit it, and hold fast the principle? or is he to reject it, and the principle along with it?—For as to the supposition of denying the conclusion, and yet maintaining the principle,

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ciple, without refuting the supposed demonstrative reasoning, I regard it as an absurdity too gross to deserve a moment's attention.

It appears to me, that all such conclusions from a principle, whether firmly believed and asserted, or only assumed as probable for the sake of reasoning, should be admitted as possible, and in different cases as probable or improbable in various degrees, according to many circumstances of analogy, and perhaps other considerations, not easily specified, which have sometimes led men of superior good sense and peculiar sagacity to very happy anticipations of an unknown result. Nor can I conceive any reason that a person should have for rejecting the necessary inferences of a principle which he really believed, when they are pointed out to him, and are neither absurd, nor known experimentally to be false. But I have found experimentally, that all the strictly necessary inferences which I have drawn from the doctrine of Necessity, and which are possible, and the corresponding inferences to which, with
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respect to physical causes and effects, are known to be true, are uniformly rejected by those who assert the doctrine in question, as so manifestly false that there is no occasion to put them to the test of experiment. Now, from this intuitive knowledge of the falsity of the untried but possible consequences of the principle, I am disposed to infer, that the same persons had a knowledge, though they might choose to disregard or to deny it sometimes, of the falsity of the principle itself. But of this more fully afterwards in its proper place.

Another censure, or suspicion at least, to which I should be exposed, it is proper to guard against, by premising, that no person can be more sensible than I am of the impropriety, the folly, the absurdity, or whatever opprobrious name may be given to it, of applying mathematical reasoning to moral subjects. But I must point out two important circumstances in this particular case, which I trust will not only excuse but justify my attempt.

In the first place, I do not apply mathematical reasoning to prove directly any thing in morals, or any thing relating to mind. I am well convinced that there is something about mind that cannot be measured, and to which therefore it would be absurd to apply mathematical reasoning. I only apply mathematics to a certain theory of some of the operations or phænomena of mind; which theory I mean to disprove. When it is demonstrated to be false or absurd, the direct contrary of it, according to a well-known axiom of logic, is at the same time demonstrated to be true; and this truth, in the present case, being self-evident, can scarce admit of any other kind of proof: nor indeed would it have required any proof at all, as it is very generally acknowledged by mankind, unless some philosophers had thought fit to deny it.

In the second place, I conceive that the theory in question fairly admits of the application of mathematical reasoning directly to itself, and of course indirectly to the phænomena which it pretends to explain;

plain : for it puts the volitions and actions of men, in relation to motives, on the very same footing with the phænomena which occur in the material world, in relation to physical causes. According to it, motive and action are as constantly conjoined as cause and effect in physics ; and this constant conjunction, according to Mr HUME's system, is all that we know, or, from the nature of things, or at least of our own faculties, ever can know, either of the relation of cause and effect, or of that of motive and action ; which relations he contends ought therefore to be reckoned one and the same. According to Mr HUME's system, the motive should be considered as the cause of the action ; not indeed directly, without volition, or in opposition to it, but by means of it ; the motive first influencing the will, and producing volition, and this again producing action. So that, in short, every volition and action may fairly be regarded as an effect, indicating the kind, and measuring the degree of its cause, as much and as certainly as any change, commonly termed an *Effect*, in inanimate matter. Nor is it of
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the smallest consequence with respect to the ultimate result or conclusion, what number of steps or links there may be in the chain of causes and effects, between the motives applied and the actions consequent upon them, provided only the conjunction between every two contiguous links be constant; and unless this be the case, the conjunction of the first link with the last cannot be constant. Now, if such be the relation between motives and actions*, it is plain that the degree or strength, as well as the kind of the motives or causes of human actions, may be as easily discovered, and as fairly measured, by the actions proceeding from them, as heat may be by the expansion of quicksilver, or gravity by the vibration or inclination of a pendulum. But to things measurable in this way, mathematical reasoning is undoubtedly applicable; for it has often been applied with success.

There are very strong reasons for pre-

* This is expressly asserted by Dr Priestly, Illustrat. vol. 2. p. 40.

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ferring mathematical demonstration to every other form of argument in such a controversy as this.

As there is no ambiguity in mathematical terms, it is difficult or impossible to dispute or quibble about the import of any proposition, or argument, or conclusion, which is expressed in such terms; and as the fundamental truths or axioms of geometry are well understood, and universally admitted, it is very difficult, and very unusual, and I may add very dangerous too, ever to express dissent or doubt with respect to arguments or conclusions that are immediately resolvable into such axioms.

Men so oddly constituted by nature, or so strangely confounded and bewildered by false science, as to doubt, or to pretend to doubt, of the existence of the ground whereon they tread, of the friends with whom they converse, of the bread which they eat, nay even of their own existence, and who are brought to believe, or at least to maintain, and perhaps to think they ought

ought to believe, that they are conscious of no more power over their own actions, than what we conceive a weathercock to have over its own motions; and who will assert boldly, that they feel themselves, and that all mankind feel themselves, irresistibly determined, by a motive which they cannot specify, to give the preference to one of two chances which they know to be perfectly equal; and that they conceive a person may reasonably be praised or blamed, nay justly rewarded or punished, for doing what he could not help doing;—will yet hesitate to admit, that a part may be greater than the whole, or that two things equal singly to one and the same thing may yet not be equal to one another: Or if any person's zeal for a favourite doctrine should tempt him to assert or to admit such absurdities as these, it would avail him nothing; for such conduct would inevitably be considered, not by the vulgar only, but by philosophers themselves, as equivalent to a formal renunciation of all pretensions either to veracity or to the use of reason.

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But even in arguing such a point as that of Liberty and Necessity with men of good understanding, and of the most perfect candour, and it is folly to argue with any others, there is a very important advantage to be gained by the use of mathematical reasoning, especially when diagrams are employed, but to a certain degree, even when algebraical *formulae* are applied; namely, that the whole chain of reasoning lies before us at one view; so that if there be the smallest error or imperfection in any part of it, it must instantly be discovered, and when discovered, there can be no dispute about it. Every suspicion or doubt that can arise may in a moment be either removed, or changed into perfect certainty. It is scarce possible that a person reasoning in such a way should deceive himself; and it is absolutely impossible that he should deceive or mislead others, who understand the nature of mathematical reasoning.

Such is the kind, and such are the acknowledged and long-experienced advantages, of the *instrument* which I employ to

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assist me in the investigation which I have undertaken. If my rule and compasses (to use BACON's favourite illustration) are bad of their kind, or if I have through accident or ignorance (for I am sure it has not been with design) misapplied them; if I have included in my *measurement* any thing which I ought not to have included, or have omitted any thing which I should have taken in, or have erred in stating the *account*, which I have endeavoured to make up with the greatest precision, I must answer for it; and I shall chearfully acknowledge my error whenever it is pointed out to me, and my obligations to the person who shall set me right: but then, neither candour requires, nor reason permits me to listen to any other kind of arguments or objections that *can* be urged against my work. Such is the undisputed prerogative of mathematical reasoning; it is not only of much higher authority in every case to which it can be fairly applied, than the unassisted judgement of the wisest of men, but it is of higher authority than any other assistance to human understanding that has yet been contrived;

ved; and no prejudices, no opinions, no authorities, no reasonings, can without absurdity be opposed to it. When I have conducted it with caution, and revised it with care, and submitted it to the review of many different persons who are well qualified to judge of it, and am still ready to listen to every objection that can be urged, either against the principles assumed, or the several steps of the reasoning employed, I have done all, not only that I ought to do, but that I can do, to be assured that my conclusion is right. I have at least taken it out of the hands both of the vulgar and of metaphysicians, who seem to distrust one another, and put it into the hands of mathematicians, whom both parties respect, and can have no reason to distrust. If any person shall notwithstanding endeavour to argue against it on other principles, and by a different form of reasoning, he can deserve no more attention or regard than one, who, without denying the axioms of geometry, or pointing out any defect in the reasonings of mathematicians, should write a huge book, or pronounce a very spirited Phi-

lippic, to prove that the three angles of a plain triangle are not equal to two right angles. Any thing demonstrated mathematically, against which no proper mathematical objections can be made, whatever else may be said against it, neither requires nor can well admit of any additional support or vindication : Indeed to argue for it is as great an absurdity as to argue against it.

This supreme prerogative of mathematical reasoning, is, I believe, undisputed among men of science; several of whom have been at pains to point out the various circumstances in which the superiority of mathematical over every other kind of reasoning chiefly consists. The best observations on this subject that I have ever seen, are those of Dr BARROW, in his *Lectiones Mathematicæ*; of Monf. D'ALEMBERT, in his *Elemens de Philosophie*, and *Discours preliminaire de l'Encyclopedie*; and of Dr REID, in his Essay on Quantity, published in the 45th volume of the Philosophical Transactions.

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If it be not impossible, it is at least needless, to add any thing to what these authors have said on this subject: but though nothing can be wanting to confirm the confidence which men of science place in mathematical reasoning; yet I think it may be worth while to point out a few of the most important and generally acknowledged advantages of it, in order to shew that they have all been kept in view, and, as I trust, fully attained, in this Essay.

Diagrams and algebraical *formule*, tho' much used, and with great advantage, in mathematical reasoning, are evidently not essential to it, nor to the most perfect demonstration. We have demonstration without diagrams, when *formule* are employed, as in algebra; without *formule*, when diagrams are used, as in the ancient geometry: whence it follows, that demonstration depends on something that is in common to both those modes of reasoning: and we have mathematical demonstration in many cases, as in reasoning about proportionals, and, if our powers

powers of apprehension and comprehension were greater, might have it in many more cases, without either *formule* or diagrams.

Some of the uses of both these assistances to mathematical reasoning have been already pointed out, and need not be repeated. But they have still greater advantages. Both of them, especially diagrams, and to a certain degree even algebraical *formule*, with men who are much used to them, assist very greatly the *apprehension*, or, as we often call it, the imagination. They enable us to conceive and understand, more easily and more clearly than otherwise we could do, the various things and relations about which we are to reason. The diagrams, in particular, may be regarded as a kind of illustrations or rude examples of the truths to be demonstrated. Hence a good *construction* is often sufficient to enable either the author, or any other person of competent knowledge, to make out the demonstration of a proposition, without the help of words; and both diagrams and *formule* contribute much to assist *comprehension*;

benfion; that is, as it appears to me, the simultaneous conception of a great number or mass of co-existent thoughts; and at least the immeasurably quick conception of a train of thoughts in fucceffion, such as occur in numberless propositions, that involve many things, relations, and conditions. Grammatical language, whether spoken or written, as being only a fucceffion of audible or vifible figns of thoughts arranged in a certain artificial order of time and place, both from its flownefs, and from the nature of its arrangement, is a very inadequate exprefion, either of the wonderfully quick or the variously combined operations of thought which it is employed to denote; many of which ftand related to one another in ways very different from any *possible* arrangement in time and place. To thefe natural relations all fucceffions of words do fome kind of violence; the inflections of words, fuch as are found to a certain degree in all languages, and to a very great degree in the more perfect ancient languages, do fome kind of juftice to them; but diagrams and *formule* approach

proach much nearer to a just expression of the combination, or very quick succession of thoughts which they are employed to denote or illustrate, than either the arrangement or the inflection of common words. A proper diagram will suggest almost instantaneously, not only the proposition, but the demonstration of an important and complicated theorem. And though algebraical notation or *formule* have not precisely this advantage; yet they come so near to it, that by means of them mathematicians can fully and distinctly express in one line theorems so complicated, that the enunciation of them in grammatical language would require many pages; which would never answer the purpose; for long before the reader or hearer could arrive at the end of the proposition, the first part of it, or rather the thoughts expressed by the first words of it, would be gone, not to be recalled without a painful effort, and scarce to be retained so as to be united with, or conceived along with the thoughts denoted by the last words of it; without which the proposition, as, for example, a certain relation
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predicated of the subjects of reasoning, cannot properly be said to be conceived at all. And this inconvenience being repeated at every step of perhaps a very long demonstration, must soon become quite intolerable.

To this it may be added, that both diagrams and algebraical *formule* are necessarily free from that ambiguity arising from the various meanings of the words of common language, which has so often confounded the reasonings and frustrated the labours of men of genius who employed it carelessly in scientific researches.

On account of these advantages, not as having any kind of authority, nor yet as being essential to perfect demonstration, algebraical *formule* and diagrams are occasionally employed in this Essay.

Another important advantage of mathematical reasoning, and which I conceive to be essential to it, and in a manner characteristic of it, is, that it relates to quantity. Now, the notions of quantity, in
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the most comprehensive sense of this term, and of its different *genera* and *species*, and of the various relations of quantity, such as equal, greater, less, proportion, addition, subtraction, &c. are so precise, and so familiar to us, that there is peculiar perspicuity, and in general facility too, in all reasonings which depend upon them; and the ultimate truths concerning them have long since been reduced to the form of axioms, and universally acknowledged as such.

“ Quantity is that which may be measured. Whatever is measurable must be made up of parts, which bear proportion to one another, and to the whole; so that it may be increased by addition of like parts, and diminished by subtraction, may be multiplied and divided, and, in a word, may bear any proportion to another quantity of the same kind, that one line or number can bear to another.

There are some quantities which may be called *proper*, and others *improper*. That may be called *proper* quantity which
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is measured by its own kind, or which of its own nature is capable of being doubled or tripled, without taking in any quantity of a different kind as a measure of it. Thus a line is measured by known lines, as inches, feet, or miles; and the length of a foot being known, there can be no question about the length of two feet, or of any part or multiple of a foot. And this known length, by being multiplied or divided, is sufficient to give us a distinct idea of any length whatsoever.

Improper quantity is that which cannot be measured by its own kind; but to which we assign a measure by means of some proper quantity that is related to it. Thus, velocity of motion, when we consider it by itself, cannot be measured. We may perceive one body to move faster, another slower; but we can have no distinct idea of a proportion between their velocities, without taking in some quantity of another kind to measure them by. Having therefore observed, that by a greater velocity a greater space is passed over in the same time, by a less velocity a less space, and by an equal velocity an equal

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space,

space, we hence learn to measure velocity by the space passed over in a given time, and to reckon it to be in exact proportion to that space; and having once assigned this measure to it, we can then, and not till then, conceive one velocity to be exactly double, or half, or in any other proportion to another; we may then introduce it into mathematical reasoning without danger of confusion or error, and may also use it as a measure of other improper quantities.

All the kinds of proper quantity may be reduced to these four, Extension, Duration, Number, and Proportion. Tho' proportion be measurable in its own nature, and therefore have proper quantity; yet as things cannot have proportion which have not quantity of some other kind, it follows, that whatever has proper quantity must have it in one or other of these three kinds, Extension, Duration, or Number. These are the measures of themselves, and of all things else that are measurable.

It is not easy to say how many kinds of
improper

improper quantity may in time be introduced into mathematics, or to what new subjects measures may be applied; but we may conclude, that there is no foundation in nature for, nor can any valuable end be served by, applying measure to any thing but what has these two properties: First, it must admit of degrees of greater and less; secondly, it must be associated with or related to something that has proper quantity, so as that when one is increased the other is increased, when one is diminished the other is diminished also; and every degree of the one must have a determinate magnitude or quantity of the other corresponding to it."

These paragraphs are quoted almost *verbatim* (with only a little abridgement) from Dr REID's paper already mentioned. That paper was written with the express purpose of shewing that mathematical reasoning was not applicable to moral subjects. It must be considered, therefore, as the most unfavourable in its principle to my design. Yet even according to the two requisites mentioned in the last paragraph,

graph, it must be evident, that if the motives of men be associated with or related to their actions, in the way that is asserted by Mr HUME, and the other advocates for the doctrine of Necessity, they may be measured with a certain degree of precision by the actions proceeding from or constantly conjoined with them; especially such actions as stand related to things that have proper quantity. It is thus that we measure, and are thereby enabled to apply mathematical reasoning to, forces or causes of motion; of which causes we know nothing (as Dr REID himself acknowledges) but by their effects, namely, motion, with which they are duly associated or related, and motion again being duly related to extension and duration, which are proper quantities, both the motion and the force (or cause of the motion) become measurable.

In like manner, we may measure the strength of an acid or an alkali by their relation to the opposite salt; and knowing how much, that is, how many grains or pounds of the one are required to saturate

a given quantity or number of grains or pounds of the other.

If the general nature of the reasoning that I employ be considered, which is direct with respect to physical causes and effects, but indirect, or *ad absurdum*, with respect to motives and actions, it will not be thought any objection to my plan, that neither motives nor the force of motives are really quantities or subjects of mathematical reasoning. I mean to prove, that they are *not* quantities, which, according to the doctrine of Necessity, they would be, and for this purpose assume the supposition, that they are what they have been thought, and from this supposition draw necessary inferences which are absurd.

I should beg leave to add, by way of commentary on Dr REID's Observations on Quantity, and the manner in which improper quantities are to be measured, that some of them are so imperfectly known to us, that they cannot be fully measured, nor accurately compared together,

ther, so as to enable us to specify exactly the proportion which one of them bears to another. This is remarkably the case with respect to heat, which may be regarded as an improper quantity, admitting of degrees of greater and less, and being associated with or related to something that has proper quantity, so that when one is increased the other is increased, when one is diminished the other is diminished also; and every degree of the one having a determinate magnitude or quantity of the other corresponding to it; that is to say, having uniformly certain effects on various substances, by which the presence of it is known, and the degree or quantity of it is measured. The effects of heat in producing fusion and evaporation in different bodies are but ill fitted to afford a sufficient measure of heat; for however constant these effects may be, they have not in general those varieties of degrees perceptible to us which would be necessary in a measure. The effects of heat in producing sensation are in a great variety of degrees; but they are not sufficiently constant for the purpose required,

as the degree of sensation from any given degree of heat varies greatly, according to many circumstances, both mental and corporeal, of the sentient being. The effect of heat best adapted to serve as a measure of it, and accordingly employed almost universally for this purpose, is the expansion (or in some cases, as in Mr Wedgwood's clay-thermometer, the contraction) which it produces. This effect is constantly conjoined with it; it has an infinite number of degrees, easily perceivable by us, and corresponding to the intensity of the heat; and expansion or contraction, as being modifications of extension, have *proper* quantity, or are measurable by their own parts.

Yet, with all these advantages, it is evident, that expansion and contraction afford but an imperfect measure of heat, and that we have but an imperfect knowledge of the quantity of heat in any body, and of the proportion which one degree of heat bears to another. We know not the beginning of the scale of heat, or that state of a body which bears the same rela-

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tion to heat that rest bears to motion, or the cypher [0] to an arithmetical number. We cannot, therefore, say with propriety, that one degree of heat is twice or thrice as great as another degree of it: for example, that melting iron is twice or thrice as hot as melting ice.

This, however, by no means prevents us from applying mathematical reasoning to the subject of heat, either as to absolute quantity or as to temperature. It only precludes any reference to those mathematical axioms that involve the notions of multiplication and division. But all reasonings that require a reference to those axioms which involve only the notions of equal, greater, less, addition, and subtraction, will still be valid. If to equal temperatures equal additions of temperature be made, the sums of temperature will be equal: if unequal additions or subtractions be made to or from equal temperatures, or equal quantities of heat, the sums or the remainders of temperature or quantities of heat will be unequal.

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In like manner, we may fairly refer to the same kind of axioms in reasoning concerning the supposed force of motives in producing action, if they admit only of the relations of equal, greater, less, addition or increase, subtraction or diminution, even although we cannot measure exactly the proportion which the force of one motive bears to that of another, nor say with any propriety, that one of them is half as strong, or three times as strong, as another. We cannot doubt, that a poor labourer's desire to earn a shilling is equal to his desire to earn a shilling, and greater than his desire of earning sixpence, and less than his desire of earning a crown: yet it would be rash, and perhaps wrong, to say that his desire of earning a shilling was double his desire of earning sixpence, and only the fifth part of his desire to earn a crown. We are sure likewise, that walking a mile is more in point of action than walking an hundred yards on the same kind of road; and that working for one day is much less than working in the same way for a week. Now, it is in consequence of these obvious relations

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tions of motives and actions respectively, and to one another, and of actions to things having proper quantity, such as extension and duration, without seeking to know their exact proportions, or the lowest possible degrees of our appetites, passions, desires, &c. that I conceive they may be regarded as species of quantity, and fit subjects of mathematical reasoning.

But the chief advantage of mathematical demonstration, and what independently of all other considerations, gives it an infinite superiority over all other kinds of reasoning and evidence, and makes it of the highest possible or conceivable authority in science, is, that it consists entirely of an uninterrupted series or chain of necessary truths; every one of which we clearly apprehend, not merely as a simple matter of fact, which is, or was, or is to be, though it might have been otherwise, at other times, or in other circumstances; but as something immutable and eternal, independent of all times and circumstances, which ever *must be*, the contrary of it,
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or any thing inconsistent with it, being as clearly apprehended to be absurd and impossible.

This is what Monf. D'ALEMBERT terms "*La liaison de deux idees,*" and "*L'enchainement que les Geometres savent mettre entre les verites.*"

BARROW's notion of it, though expressed in different words, is precisely the same with D'ALEMBERT's: *Mibi videtur, quod omnis discursus certus ac evidens, juxta logicæ regulas irrefragabiles, fluens ex principiis universaliter et perpetuo veris, adeoque in quo necessaria terminorum connexio reperitur, est propriissime, potissime, scientificentissimeque demonstratio.*—*Quodque demonstrationes (quanquam aliæ aliis brevitate, concinnitate, proximitate versus prima principia, et similibus præcellant virtutibus) evidentia saltem, certitudine, necessitate, terminorum essentiali connexione, et dependentia mutua, sibi cunctæ pares sint; denique quod mathematica ratiocinia sint perfectissime demonstrationes.*

The notions of Quantity, and of its various

rious genera, species, and relations, are peculiarly fit to be the subjects of such strict demonstrative reasoning; as, from their simplicity, precision, and perspicuity, many necessary relations among them are more easily perceived than among almost any other things. The most general and obvious of these have been expressed, and universally admitted as axioms. But it must be observed, that no inference can be drawn merely from the axioms taken by themselves, nor any progress made in mathematical science, without assuming certain hypotheses, or suppositions of things possible, or at least distinctly conceivable. These are expressed by accurate definitions, which bear a certain relation to what are termed the *Postulata* of geometry, or acknowledgements that certain things may be done, or at least may be conceived to be done. Accordingly all the demonstrations of geometry cannot prove one simple matter of fact; not even that the quantity A is equal to the quantity C. But if it be assumed, that A is equal to B, and that B is equal to C, then we should have complete demonstration, that A *must*
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be equal to C. Every theorem in geometry might be fairly stated in a way corresponding to this example: "*If there were a right angled plain triangle, the square of the hypotenuse must be equal to the sum of the squares of the other two sides of it.*" And the demonstration of every proposition in geometry may be resolved into a chain of perfect syllogisms, ultimately depending on the axioms and on the definitions. Now, in every perfect syllogism, the necessity of the conclusion, as following from the premises, is apprehended as clearly and intuitively as the necessity of any axiom in geometry. It has been said, and I believe with reason, that a man who could admit the major and minor of a just syllogism, and yet *bona fide* deny the conclusion of it, would be a greater monster than a man with two heads. The same may be said of one who *bona fide* denied a geometrical axiom. It is even implied in the notions of logic, of a just syllogism, of demonstration, that no such monster ever did or ever can exist. And this uniform concurrence and acquiescence of all men of sound judgement
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and competent knowledge, in such principles and reasonings, affords, what indeed is not needed, an additional proof of their validity; and not only gives us reason to distrust, but makes it impossible for us not to distrust, either the judgement, or the candour, or both, of those who refuse their assent to them.

The superiority of that intuitive perception of necessary truth in the principles assumed, and of necessary connection, at every step of the deduction, and consequently of the necessity of the ultimate conclusion, over all merely plausible inferences from various circumstances of probability, which do not exclude the possibility of the contrary; over human testimony, which may be founded on mistake, or may be wilfully false; over the hasty inferences we often make from our sensations, and mistake for the direct evidence of our senses; is too obvious to admit of illustration. We certainly do not know, nor do I believe, that by any effort of imagination we can suppose a higher kind

kind of evidence, or one more strictly scientific.

I must add, that, as it is not among quantities alone that we are capable of perceiving necessary relations, there may be axioms, or self-evident necessary truths, and strict demonstration of truths not self-evident, on other subjects besides mathematics. In this Essay I have occasion to give some specimens of such axioms and demonstrations with respect to the notion of the constant conjunction of cause and effect. Indeed these axioms have been tacitly assumed, and admitted, even by mathematicians, in their reasonings in physics; just as the axioms of geometry, (according to an important observation of D'ALEMBERT), though they had never been expressed formally and separately, would uniformly have been admitted by all mankind, in every piece of reasoning wherein there was occasion to refer to them.

If the principles which I assume as axioms are self-evident necessary truths, and

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if the necessity of the connection at every step of the very short series of reasoning that I employ be intuitively evident, and if the various consequences drawn from the principles by that reasoning be either intuitively or experimentally absurd or false, my argument is the demonstration which I take it for. Nor can the ultimate conclusion, which I conceive to be demonstrated, be denied by any candid or intelligent reasoner, unless he can show, that either some of the ultimate principles assumed as axioms, or some of the steps of the deduction from them, are erroneous.

SECT.

S E C T. IV.

Reasons for not attempting to give strict definitions of the terms employed in this Essay.—Sentiments of BACON on this subject.—Means of supplying the want of definitions on certain subjects.—Observations on the meaning of some of the terms employed.—Justness of ARISTOTLE's definition of the final Cause or Motive;—physical Cause;—Constant Conjunction;—Power;—Want of Power, or Inertia of Mind;—Mind;—Body.

WHatever may be thought of the advantages or the indispensable necessity of definitions of the terms employed in many scientific researches, it will, I presume, be acknowledged at once by every person of competent judgement and candour, that in certain cases good definitions cannot be given; and that of many terms no definitions are needed,

even for the purpose of the strictest reasoning.

No simple notion admits of being defined; nor can the term employed to express it be explained any other way than by other synonymous words or phrases, or by the uniform use and application of the term to the thing or notion denoted by it. And if the thing or notion be well, and of course uniformly conceived by mankind, whether it be simple or compound, and if the term expressing it be familiarly used in common, or even in scientific language, and applied only to its proper object, it can scarce admit of, and surely cannot need, any explanation or definition. Who, for example, would think it necessary, with a view to any reasonings, to define existence or thought, time or space, a man or a woman, a house or a church? If we would acquire more accurate notions, or more perfect knowledge of those and numberless other things than mankind generally have, we must examine the objects themselves, not attempt to reason from definitions of them; and

and we shall infallibly be directed to the proper objects that we wish to examine, both by the general imperfect notions we have of them, and by the uniform application of the terms expressing them.

The uselessness of definitions in many cases, and the impossibility of giving them in others, and the proper means of supplying the want of them, and the folly of attempting to acquire just notions, or to make any progress in natural science, merely by arbitrary definitions, or by any other means than accurate examination of the objects to which our notions relate, was clearly perceived and well pointed out by BACON.

Syllogismus ex propositionibus constat, propositiones ex verbis, verba notionum tesserae sunt. Itaque, si notiones ipsae, (id quod basis rei est), confusae sint et temere a rebus abstractae, nihil in us quae superstruuntur, est firmitudinis. Itaque spes est una in inductione vera.

NOV. ORG. 14.

Verba

Verba autem plerumque ex captu vulgi induntur, atque per lineas vulgari intellectui maxime conspicuas res secant. Quum autem intellectus acutior aut observatio diligentior eas lineas transferre velit, ut illæ sint magis secundum naturam, verba obstrepunt. Unde fit ut magnæ et solennes disputationes hominum doctorum sepe in controversias circa verba et nomina desinant; a quibus (ex more et prudentia mathematicorum) incipere consultius foret, easque per definitiones in ordinem redigere. Quæ tamen definitiones in naturalibus et materiatis huic malo mederi non possunt; quoniam et ipsæ definitiones ex verbis constant, et verba gignunt verba: adeo ut necesse sit ad instantias particulares, earumque series et ordines recurrere.

NOV. ORG. 59.

These observations of BACON perhaps would need, and surely would deserve, a formal and ample commentary; and such a one I may probably have occasion to bestow on them on another occasion. Even this Essay may be regarded as a sort of practical commentary on them, at least as an application of the necessary precept,

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Ad instantias particulares, earumque series et ordines recurrere, instead of offering or adopting definitions, in order to acquire just notions of the objects of my investigation. These are all natural, familiar, and I believe universal and uniform, notions among mankind; but they have unluckily, in consequence of various circumstances, been in a great measure confounded with one another, and require to have their differences ascertained and pointed out; as, for instance, between motive and physical cause. This being the object of my Essay, it would be little less than an absurdity, and a contradiction in terms, and certainly would be a complete begging of the question, to begin by giving definitions of those two notions and relations. Good definitions of them must express their generic nature, and their specific differences; that which is in common to them both, and that which is peculiar to each of them. Now, this is the very point in dispute; and one of the most important circumstances of difference between them, the reference of motives to a self-governing power in living persons, is denied to take place,

place, or even to be possible. And this point evidently cannot be settled by any definition, but only by careful examination; the result of which may be a good definition, if such a one should be needed.

But though definitions of them cannot be given, and are not wanted, some observations on the meaning and application of the principal terms employed in this Essay may be useful in various ways.

With respect to the term *Motive*, it does not appear that there has ever been any ambiguity or misapplication of it, as there has so often been of the term *Cause*, which has been employed in various meanings; some of them generic and comprehensive, others of them specific and limited, and one of them synonymous with *Motive*.

Thus we may say without impropriety, that a porter's desire to earn a shilling was the *cause* of his going a mile; just as we say, that the impulse of the wind on the sails of a ship is the *cause* of her progress

gress through the water. But the meaning of the word *Cause* is widely different in these two cases. In the former it is synonymous with *Motive*; but not so in the latter. We might say very properly, that the desire of earning the money was the porter's *motive* for going; but not that the impulse of the wind was the ship's motive for advancing through the water.

So well is this understood by mankind in general, that even when the same thing, as for example an emotion or passion, is the *physical cause* of some events or effects, and the *motive* of other events or actions, these two relations are never confounded in discourse by any misapplication of the term *Motive*. We should never say, that fear was a person's *motive* for trembling or growing pale; but we should say it was his motive for running away on an occasion of danger. A person, from violent anger, may grow red, may have a diminution of some secretions, as of those in the mouth; an increase of others, as of the bile; and a vitiated state of others,

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as of the milk, in a nurse; or may have a great and sudden increase of muscular strength, may have the circulation of the blood and the respiration much disordered; may fall into convulsions or apoplexy, or may die suddenly. All these are regarded as *effects*, and referred to the passion Anger as their *cause*.

The same person, from the same passion, may beat or kill those who were the objects of it. These are regarded as *actions*, and referred to anger as the *motive* of them.

SHAKESPEARE tells us, that "some have died for love, and some run mad, and some with desperate hands themselves have slain." Dying or running mad are conceived to be *effects*, referable to love as their *cause*; killing themselves, an *action* referred to love (or, more strictly, to the desire of ending the misery they felt from unhappy love) as the *motive* of it.

I believe, therefore, it will be found, that any thing usually termed a *motive* may,

may, without danger of confusion or error, be taken as an example to be examined and compared with any proper example of a *physical cause*.

From considering the examples of motive and action, it appears that there is one obvious and important circumstance in all of them, which is not found in any of those of physical cause and effect, namely, the intervention of the person's will, choice, or determination, between the motive and the action. For reasons formerly mentioned, I do not regard this as the only difference between the two relations in question, nor admit even the relation between the motive and the volition or determination to be the same with that between a physical cause and its effect; but I conceive that this simple and obvious circumstance may with propriety be attended to in the mean time. It will serve almost as well as a definition to enable us, in case of need, (which I can hardly suppose), to distinguish the one relation from the other, till by more accurate observation and induction the fur-

ther differences between them, if any such there are, can be fully ascertained.

But though definitions in the present case would be both useless and improper, there is so much merit in ARISTOTLE'S definition of a motive or final cause, and such a use may be made of it, that it is worth while to take notice of it. He defines the fourth of his causes, which is the one at present in question: Το 'ου 'ενεχα, και το αγαθον. These are indeed but imperfect sentences or innuendos; but they are perfectly intelligible, and in one respect better than complete sentences or propositions would have been. The preposition 'ενεχα has, I conceive, a generic meaning, in common with all other prepositions, namely, *relation*; and a specific meaning peculiar to itself, namely, that particular kind of relation, which may be expressed (though not perhaps exclusively) in Latin by *ob* or *propter*, and in English by *for*, or less ambiguously, (as *for* has many meanings), by the phrases, *for the sake of*, *on account of*, *in consideration of*, *with a view to*, and many others. This
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is fully confirmed by ARISTOTLE's second innuendo, *καὶ τὸ ἀγαθόν*, and well illustrated by the example he gives of making a statue to be placed in a temple from some religious consideration.

Now, it appears to me a curious, and even an important consideration, that those very philosophers who have most keenly asserted the doctrine of Necessity as consisting in the perfect identity of the relation of motive and action with that of physical cause and effect, and who have most positively denied the reality, and even the possibility, of any self-determining power in a person, independently of the absolute and irresistible force of motives, have never, in point of thought, deviated in the least from the common notion of motive; "that for the sake of which:" Now, this notion always implies and refers to such a power in the agent, exerted in the common cases of voluntary actions proceeding from motives of moderate intensity, and overcome in the rarer cases of compulsion from motives of extreme violence, as, for example, fear or torture,

torture, which ordinary persons cannot resist. Even those who have expressly asserted the point of constant conjunction as taking place equally in both relations, seem only to have believed it to take place in that of cause and effect in physics, but have never supposed it in that of motive and action. I conceive that such philosophers have been only perplexed by the vague and ambiguous terms which they employed in their reasonings, and by the superficial careless view which they have taken of those cases in which the apparent result is the same, according to the relation of "that for the sake of which," and that expressed by the terms *Physical Cause* and *Effect*, which is undefined, but which is conceived to involve the circumstance of constant conjunction of the cause with its effect, as well as those of priority of the cause, and relation to event; which two last circumstances are common to both relations. I find no reason to think that they ever have been deceived; but, on the contrary, every reason to believe that they never have been deceived, in point of thought, with respect to the relation of
motive,

motive, however sadly they may have been confounded, and whatever strange conclusions they have been led to assert, or to admit, with respect to it, by the vague terms they employed in their reasonings.

This I conceive may be justly inferred from the following considerations. It is easy to specify cases or instances in which the result of the two relations in question is different; and particularly in which the most obviously necessary inferences from the undefined, but well understood notion of physical cause, or from the more definite principle of constant conjunction, lead to a plain visible result, perfectly inconsistent with that to be expected from the principle of "that for the sake of which." Now, when various necessary inferences are drawn from the principle of constant conjunction, with respect both to actions and to effects; if the inferences respecting actions are of such a nature as neither to require nor to admit of any appeal to consciousness, or to a person's testimony with regard to his own thoughts,
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but are to be judged of by open experiment and observation; just as the inferences respecting physical effects commonly must be; and such inferences are proposed to those who assert the doctrine of the necessity of human actions as consisting in the perfect sameness of the relation of motive and action with that of cause and effect in physics, and particularly who maintain, that the circumstance of constant conjunction of cause with effect, motive with action, takes place equally in both relations; the consequence in all the trials that I have made has been *invariably* as follows.

1. All such inferences with respect to physical causes and their effects are universally and at once admitted; and when put to the proper test, are found experimentally true.

2. All such inferences with respect to motives and actions are universally and at once admitted in all cases in which the apparent result is the same, both according to the relation of constant conjunction

tion and that of the vulgar notion of motive, "that for the sake of which;" and these inferences are also found true upon trial universally.

3. All such inferences with respect to motives and actions are rejected or denied universally and at once; that is, without either putting them to the test of experiment, or pointing out any error in the reasoning that leads to them, in all cases wherein the result is different according to the two relations in question; the inferences in such cases, though perfectly new, and not merely untried, but unthought of before, seem to be known intuitively to be false as matters of fact; and this equally by those who maintain the doctrine of Necessity and by the vulgar; by those who assert and by those who deny those principles of which they are, or at least at first sight appear to be, strictly necessary consequences. The inferences of this kind relating to motives and actions, I own, I have not put to the test of experiment; nor have I as yet met with

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any person who thought it necessary, or even wise, to do so.

These facts shew, in the first place, that the mode of reasoning employed, and the inferences proposed as the result of it, are intelligible; for if they were not understood, they could not rationally be either admitted or rejected. In the second place, they shew that the reasonings are at least plausible; else in some one or more of so many cases, some fallacy in them would have been discovered. In the third place, they render it probable in a degree approaching very nearly to certainty, that the assumed principle of constant conjunction, of which so many (seemingly) necessary inferences are true as matters of fact in cases of physical cause and effect, is, with respect to them, a just principle, and makes a part of that relation. In the fourth place, they shew, with absolute certainty, that the same principle of constant conjunction is a false one with respect to motive and action, and makes no part of that relation. In the fifth and last place, they shew plainly, with respect to all

all on whom the trial has been made, that though they had confounded the two relations completely in their words and reasonings, yet, in point of simple thought or notion, they had distinguished them perfectly; and whenever cases requiring the distinction to be made occurred, or were proposed to them, knew well how to make it; and accordingly, in all such cases, admitted, with the most unerring precision, only those reasonings, and those conclusions, which were just inferences from the two different notions respectively; which notions they were most eagerly endeavouring to confound, and perhaps flattered themselves they had confounded for ever.

These observations, I think, go near to prove, that this natural and common notion of the relation of motive and action is almost or altogether indefeasible, like several other natural notions which many philosophers have in vain endeavoured to get rid of; since the most deliberate and persevering efforts, made with every assistance that plausible reasoning, and ambi-

guous words, and even superior talents and acuteness, could furnish, have been employed in vain to subvert it. And it is on this principle alone that I conceive the singular phenomenon can be accounted for, of men of science asserting a principle, and yet denying its apparent necessary consequences, without a trial, although they are possible; and without shewing, or attempting to shew, that the reasoning which led to them was erroneous *.

They likewise prove, that the account or definition of it given by ARISTOTLE is very nearly just; though perhaps an ingenious man, who should chuse to employ himself so idly, might find means to cavil at it in a plausible manner. *Si sic omnia dixisset*, had all his definitions, or even those only which related to causes, been of this kind, it would have been well for science, and would probably have saved philosophers the fruitless labour of treading over and over the mazes of an end-

* Vide p. 82. & 83.

less labyrinth, into which he led them merely by one or two arbitrary and bad definitions, and a needless perversion of common language.

The circumstance, already taken notice of, that ARISTOTLE's definition of a final cause or motive consists only of innuendoes, not perfect propositions, I conceive to be an advantage in it. Perhaps they might be completed, in an unexceptionable manner, somewhat in this way: "That for the sake of which persons usually act,"—"the good proposed to be attained by acting." But were we to complete them in a more careless, but more obvious way, "that for the sake of which persons act," "the good attained by acting," the definition would be erroneous, and much too limited, and would lead to a very idle controversy, Whether any appetite, passion, desire, or other principle of action, usually termed a *Motive*, should be called such at all times, or only when action proceeded from it? But the philosophical question is not, What such principles of action shall be called? but, What is the relation
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between them and our actions? and, Is it the same with that of physical cause and effect?

With respect to the term *Cause*, from what has already been said of the various meanings, both general and particular, in which it has often been employed, and of the various principles of change to which events may be referred, the nature and differences of which have never been duly investigated, it will be evident, that it must be very difficult, if indeed it be possible, to give an unexceptionable explanation of it, such as shall completely distinguish the notion expressed by it, not only from that of motive, but from that of agent, of occasion, of instrument, of evidence, and many others. Nor shall I attempt such a task, but trust that the generic nature of the notion of *physical cause*, or that which is in common in all the examples of it, however difficult it may be to express it in words, will be understood from an examination of the various instances that are to be given of it, and compared with those of *motive*. One of the
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most obvious circumstances of it, and which, for many reasons, it is of peculiar consequence to attend to, is its *constant conjunction* with *effect*, that is, with *event* coming after it.

The meaning of the phrase *Constant conjunction* has already been explained, p. 28. 29. 30. But some further elucidations of it may be requisite.

The usual proper event or effect constantly conjoined with a cause, or at least conceived to be so, cannot in all cases be observed pure, as many different causes, having effects either of the same kind or of different kinds, may be applied to the same subject at the same time. Effects of the same kind must interfere with one another, or be mixed and blended together, in one of three different ways: Either directly concurring, and being added together; or directly counteracting and opposing one another; or being indirectly combined, so as neither completely to concur, nor completely to oppose one another.

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Thus, for example, a body under the influence of equal causes of motion northward and southward, if these are constantly conjoined with their respective effects, *must* remain at rest; it *cannot* move in two opposite directions at once; that is an absurdity, and a physical impossibility; and a supposition as inconsistent with the nature of things, or with our notions of body, space, and motion, as the supposition of a part being greater than the whole is with our notions of quantity, of a whole, and of a part. If the body were to move either north or south, then one or other of the opposite causes would have no effect, or would be separated from its effect; which is inconsistent with the principle or supposition of constant conjunction. But if the body remain at rest, then each of the causes has its full effect; which consists and is shewn in its preventing or undoing every instant the effect of the other.

Many causes may be so small in degree, that even though they be constantly conjoined with their respective effects, these,
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by reason of their minuteness, may escape our observation; for example, the gravitation of a pendulum to the body of the person who holds it in his hand, or stands near it, and the consequent deviation of the pendulum from that direction in which otherwise it would hang. And the same must be obvious with respect to motives and actions. Such instances are not to be regarded as examples of the separation of cause and effect, motive and action; but they shew the necessity of considering those cases only in which the effect or action is so great, and of such a kind, as to be easily perceivable, and in which the causes or motives respectively bear a considerable proportion to one another.

We must be cautious likewise not to confound the motive or principle of action, such as an appetite, passion, or desire, with that which is the object of such sentiments. In certain circumstances of mind and body, all the Beauties of Mahomet's paradise, and all the luxuries of Cæsar's triumphal supper, would have no charms, and would be no temptation, even to the

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greatest voluptuary, to whom at other times the charms of beauty, or even the grosser pleasures of the table, would be most effectual motives. And in some cases the offer of a shilling, of a loaf of bread, or of a draught of water, might justly be regarded as constituting a powerful, perhaps an irresistible motive. But the very existence of the motive, in such cases, depends on the poverty, the hunger, or the thirst, of the person to whom the offers are made; without which the things offered, far from being desirable, might be objects of contempt or disgust.

Such cases cannot in reason or candour be regarded as instances of the separation of motive and action; nor must we ever conceive a motive to subsist, but where there is in the person some tendency or disposition to act according to it.

The same must be understood of physical causes. No substance is of itself a physical cause: this depends on its relation to some other substance, and implies the tendency to change in the latter. A
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magnet not attracting particles of gold, or of wood, as it does those of iron; silver not dissolving in water, as salt does; salt not dissolving in water cooled to a certain degree; a magnetical bar sometimes attracting, sometimes repelling, the same end of another magnetical bar, according as the *poles* of one of them are changed; are not instances of causes separated from their effects, but only proofs that the principle of change to which the phenomena in physics are referred, is not a quality of any substance, but a relation among different substances. The substance in which the change is observed is considered as the subject, the other as the cause; and as change occurs generally (I suspect indeed universally) in both or all of the substances so related, though it be not always of the same kind in them all, it depends on the circumstance of our attention being directed, first and chiefly, to one or other of them, and on our opportunities of observing the changes that occur in them, which of them we shall regard as the subject, which as the cause; as in the examples of the communication

and the loss of motion ; of mutual gravitation ; of the solution of salt, and the saturation of water ; the melting of ice, or boiling of water, and the absorption of heat.

I cannot undertake to give an instance of the separation of a physical cause from its effect ; for I believe no such thing ever happens : nor can I undertake even to express, in an unexceptionable manner, in language, the supposition of such a case ; for it is almost absurd ; it is at least incongruous with the notion of physical cause and effect, which involves the circumstance of their constant conjunction.

—If a *heavy* body, (I mean a body remaining heavy), near the surface of the earth, left at rest, and unsupported, and not under the influence of any other physical cause, were not to fall to the ground, it would be an instance of real separation of a physical cause from its effect. But this is hardly conceivable ; it involves, if not a contradiction in words, at least an incongruity of thought, to wit, being heavy, and yet not falling when left at rest,

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not under the influence of any other cause, and unsupported.—If any body known to be heavy, such as a stone, in the circumstances now stated, and near the earth, were to remain at rest, instead of falling, we should regard the case as a miracle, and impute it either to the immediate *a-gency* of the Supreme Being, or to the *a-gency* of some other invisible Being, having power to counteract its gravitation to the earth. But such a miraculous operation of an invisible agent would no more constitute a separation of physical cause and effect, than the interposition of a visible agent, such as a living person, who should support the stone with his hand, would do.—In either case, there would be, or at least there would be supposed to be, the opposition of one principle of change, to wit, an agent, to another, to wit, a physical cause; but by no means any alteration in the nature of the latter.

Lastly, it must be observed, that in the notion of constant conjunction of cause with effect, motive with action, there is equally implied the impossibility of there
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ever being a cause applied without being followed by effect, or a change (commonly regarded as an effect) taking place without being preceded by a cause; and a motive being applied without being followed by action, or an action being done without any motive. The former point is a fundamental, and I believe a just, principle in physics; the latter is the fundamental principle and essence of the philosophical doctrine of Necessity, which I am here considering. And whatever may be thought of the truth of the principle with respect to motives and actions, it must at least be evident, that an action being done without a motive, and a motive being applied without any action following upon it, would equally be instances of the separation of them, and equally repugnant to the principle of their constant conjunction.

Yet, after all these allowances and explanations, all of which we may reasonably suppose to have been thought of by Mr HUME, when he first laid down the doctrine, and introduced the phrase, of
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Constant conjunction, and by Dr PRIESTLY, and others who have adopted them, the inferences strictly deducible from that principle are so palpably and ridiculously false, and so inconsistent with the common notion of motive, that I fear it will be thought improper, and almost uncandid, seriously to impute that principle to them, and to suppose them to have meant literally what they have asserted so expressly; as it appears scarce credible that they should not have known, that in numberless familiar instances, there is a complete separation of motive and action, while in the parallel examples in physics there is no such separation of cause and effect. Yet it would be unreasonable to suppose them deliberately to have said what they did not mean, nay almost the reverse of what they meant, and to have called that a constant conjunction which they conceived to be only occasional and separable, and where the things sometimes conjoined are much oftener completely separated. Mr HUME's expression, however, is precise; and he constantly maintains the perfect analogy or identity of the relation
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of motive with that of physical cause, in all the cases to which he seems to have attended.

If one Scotchman may presume to judge of the English style of another, I should not scruple to say, that Mr HUME understood and wrote English abundantly well to have been able to express himself justly on this point, had he conceived justly concerning the two relations in question. Then Dr PRIESTLY, who has acquiesced in Mr HUME's observations and reasonings on this subject, and even adopted his phraseology, is not only a native Englishman, but also a professed philologist, and the author of an English grammar, and a most experienced writer, both on physical and metaphysical subjects. It would be strange, indeed, if an inaccuracy of expression, such as I allude to, conveying a meaning quite different from what was intended and illustrated by many examples, should have escaped his observation.

Still, however, I own I should not have
ventured

ventured to regard the doctrine of the constant conjunction of motive and action as seriously maintained by any men of science, were it not for the following consideration, which with me is decisive: There can be no doubt, that many men of distinguished talents and eminence in science, and among the rest Mr HUME and Dr PRIESTLY, have seriously maintained the necessity of human actions, as proceeding from, or referable to motives, without any self-governing power in a person. Now, this being supposed to be the case, the relation of motive and action, it is plain, *must* be either a constant conjunction, or not a constant conjunction; that is, an occasional and separable one. But I find, on tracing them carefully, that the necessary consequences of both these suppositions are equally false, equally ridiculous, and equally inconsistent with the common notion of motive. Those who deny the self-governing power in persons, *may* choose which of those suppositions they please; but they *must* take one of them, with all its consequences, however ridiculous, or however inconsistent with

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the common notion of motive these may be. And it is surely the most candid and civil way of proceeding, to suppose them to have meant and believed what they have plainly and strongly asserted.

But this discussion relates merely to the civility and decorum due to individual authors, to whose sentiments I should be sorry to do any injustice. The method I take, I own, is rigorous; but it is not uncandid; and in this case it appears to be necessary. At any rate, with a view to the decision of the general question concerning the nature of the relation of motive, and its difference from that of physical cause, it is of no consequence whether the supposition of constant conjunction ever was seriously maintained by any author or not. It would still be reasonable and proper to state and consider it as one of the two possible suppositions with respect to the relation of motive and action, and to trace its consequences rigorously, in order to find whether it were true or false.

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With respect to the term *Power*, which already has been, and again must be, so often employed in this Essay, it will probably be thought peculiarly necessary to give some explanation of it; as Mr HUME has expressly maintained, and, by a number of very ingenious and elaborate arguments, has proved to his own satisfaction, and that of many other persons, that we have no *idea* (or notion) of power; and that there are no means by which it is possible for us to acquire such an *idea*.

The complete investigation of the notion of power, of the various notions occasionally expressed by this term, and of its metaphorical and ambiguous application in many cases, and a rigid examination of Mr HUME's doctrine with respect to it, would require, and would deserve, a pretty long Essay, and cannot with propriety be introduced in this place; but shall be undertaken afterwards. In the mean time, the following observations will, I hope, be sufficient for the immediate purpose of preventing any obscurity or

ambiguity in the use of the term; especially if it be considered, that this Essay itself is in a peculiar manner subservient to the investigation of the notion and the real nature of power, by the collection and comparison which it requires of many instances of the presence and the exertion of power on the one hand, and of the want of it on the other.

From the use of the term *Power*, or of corresponding words in different languages, it is at least to be presumed, that mankind understand something by it, that is, that they express by it some notion or *idea*, however acquired. For my own part, I conceive this to be a necessary truth, of which we may be as certain as of any in geometry.

As men understand one another tolerably well when they use the term *Power* in their conversation and writing, we may be sure that the notion understood and denoted by it is either precisely or very nearly the same among them all.

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The term *Power* is frequently used in very different meanings, that is, to denote different notions. For example, we say, A man has the power of speaking; The King has the power of dissolving his Parliament; Heat has the power of melting ice; A stream of air is the power in some machines, and the expansion of steam in others; A lever is an useful mechanic power; The second power of the number 8 is equal to the third power of the number 4.

As men do not confound those different notions expressed occasionally by the term *Power*, (so far at least as to fall into cross purposes in their conversation, or into any blunders in their conduct, whatever a few of them may have done in their reasonings), it is to be presumed, that the different meanings of the term are sufficiently explained or understood by them from the things to which it is applied.

It is to be presumed, that they have found or fancied some resemblance or analogy among all the things or notions to
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which the term *Power* is applied ; and that it is employed literally and strictly to denote some of them, and metaphorically to denote others.

The most strict and literal meaning of it appears to be an abstract notion, bearing the same relation to the verb *Possum*, which the notion of existence does to *sum*. Existence is the predicament of *being* ; power is the predicament of *being able*. *Possum* is compounded of *potis* and *sum*, signifying *to be able* ; which circumlocution is employed to supply the defects of our English verb *can*, which corresponds to *possum*. The term *Power* is derived from the French verb *pouvoir*, corresponding to *possum* and *can*, and ultimately is derived from *possum* itself. To have power, and, To be able, are synonymous and convertible phrases ; like, to be, and, to have existence ; to live, to be alive, to have life.

It is in this its strict and literal meaning that it is used in the two first instances that have been given. But there is
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some difference between the notion of power in the two cases : in the one it is more immediately, in the other more remotely, connected with its object or act; in the one, too, the connection is made partly by the relation of cause and effect, in the other it is made partly by that of motive and action.

It is in the literal, but general sense now mentioned, that I employ the term *Power* in this Essay.

The notion of power involves some other notions or things to which it bears relation, and without which it can no more be conceived, than motion can be conceived without relation to time or space.

First, It involves the notion of a Being that has power : it is an attribute, not a substance; and cannot be conceived, but as inhering in, or belonging to, or predicated of, some substance.

Secondly, It involves the notion of intelligence or thought: there is something optional

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tional or discretionary in power : the substance or Being having power must therefore be *mind*.

Thirdly, It involves the notion of voluntary agency ; nor can it be conceived without relation to action. Power to do nothing, is no power : power is the being able to do something : there can be no voluntary action without an exertion of power ; nor any exertion of power without some voluntary action. A Being that exerts power is termed an *Agent*.

Every person must judge for himself, whether he has a notion of power corresponding to what is implied in these illustrations, and whether he can distinguish it clearly and uniformly from the notion of necessary connection, and from that of constant conjunction, with both of which Mr HUME seems to confound it in his Essay. For my own part, I am very sure I have such a notion, and can as easily distinguish it from those two, or from any other, as I can the notions of existence, thought, or time ; though I cannot under-
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take to define any of them in a satisfactory manner.

If any person should not have, nor by any attention to the proper instances be able to acquire, such a notion, he ought not to attempt to reason on such subjects; he can never be any judge of them, nor even understand them. Nor can he, without absurdity, pretend either to give or to refuse his assent to any proposition that involves the term *Power*, either as its subject or its predicate. Every such sentence would be to him as incomprehensible as those of an unknown language; with the additional disadvantage, that it could never be explained to him.

I have occasion often to consider the supposed want of any such attribute of mind, as this is the fundamental principle of the doctrine of Necessity. And for the sake of brevity, and the opposition to what has been often termed *Activity*, and *Force of Mind*, I call it the *Inertia of Mind*; limiting, however, the signification of the phrase to denote merely the incapacity of

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acting optionally or discretionally, without motives, or in opposition to all motives, or in any other way but just according to the motives applied; and expressly excluding from the meaning of the phrase the circumstance of *mind* remaining or persevering in any state into which it once gets, as *body* does in a state, either of rest or of uniform progressive rectilinear motion, into which it is once put. Such permanency of state does not appear to be any part of the constitution of the human mind with respect to any of its operations. Sensation of every kind, memory, imagination, judgement, emotion, or passion, volition, and voluntary effort, all appear to be transient conditions, or attributes of mind; which of their own nature, independently of any cause applied, pass away, or come to an end. And this I conceive to be one of the most general circumstances of distinction between mere state or condition, which is predicable of mind as well as body (as, for example, madness, idiotism, vivacity, dullness, peculiar genius, wisdom, knowledge, virtue, vice,

vice) and those things which are termed acts or operations of mind, or thought.

As I have occasion often to employ in this Essay the terms *Mind* and *Body*, it is proper to mention, that they are always used in such a way as to involve no hypothesis concerning the nature of either, nor, I trust, to lead to any kind of ambiguity. The terms in question, or the corresponding words in different languages, having been very generally employed for some thousands of years, both in scientific researches and in common discourse; and having been the subjects of many definitions and reasonings; one might naturally suppose, that the notions expressed by them must be fully ascertained, universally known, and free from all ambiguity. But the history of science, and the present state of it, shew plainly that such is not the case. At different times, and even in our own time, there have been some philosophers who denied the existence of body, and others who denied the existence of mind, or of both; that is, who maintained, that there are not, or at least that we have no reason

to believe that there are any such Beings or substances as we have been accustomed to suppose, and to express by those words. And at present some authors may be found, who hold, that all those modifications or operations of thought, such as sensation, memory, will, &c. which we usually refer to mind, are really attributes of body, only peculiarly modified or constituted, as we find it in the body of a living person; just as much as extension, figure, and impenetrability, are attributes of body in all its modifications: while, on the other hand, one author at least may be found, who holds, that there is in every living person, and even in a vegetable, a plurality of minds, of different kinds or orders; nay, that there is a mind of a certain kind, in every particle of matter, which is the principle of motion, or of every change whatever in it; without the agency of which, motion could not begin, nor even continue in a body. These speculations and notions are too remote from the object of this Essay to require any discussion here.

The notions of mind and body which
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are most generally adopted, and to which my reasonings refer, are, I own, far from being perfect or satisfactory; or even direct: they are merely relative.

We perceive numberless qualities in the objects around us; these we cannot conceive but as qualities, implying a substance to which they belong, or of which they are qualities. To this substance, unknown, or known only by implication, we give the names of *Matter* or *Body*.

We are conscious of perceiving in various ways, and of remembering, thinking, willing, and many similar operations or occurrences. These we can only conceive as attributes of some Being or substance; and to this Being, unknown, or known only indirectly and by implication, we give the name of *Mind*.

The implication in both cases, I conceive to be irresistible, and the belief consequent upon it a law of human thought, as indefeasible as any axiom of geometry. But with respect to the nature of the two substances

substances of which we acquire such imperfect and relative notions by their attributes, we are left very much in the dark. For aught that at first appears, both sets of attributes might belong to the same substance.

But the infinite difference between the two sets of attributes has led the wisest and best men in all ages and nations to believe that the substances to which they belong must be essentially and completely different. And the universal and indefeasible notions of permanent personal identity, while every particle of matter in the body is changed, and of the individuality and indivisibility of a person or intelligent Being, though his body may easily be divided, give such force to that persuasion, that were it not for some illustrious examples, I should not believe it could ever be seriously denied.

But supposing the totally different nature of mind and body universally admitted, or fully established, there might still be some difficulty in the right application of
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of the terms. The two substances are conceived to be united in the living person. But that is not all. Certain bodily organs are so immediately subservient to the attributes or operations of mind, that it does not appear that these can be performed without them ; or performed properly, unless the organs be in the proper condition. Thus the brain seems necessary for every operation of the human mind, thinking, memory, sensation, will, voluntary effort to motion : the eye seems necessary for seeing, the ear for hearing, the muscles for the voluntary effort. Certain it is, that we have never met with any instances of men making an effort to motion without muscles, seeing without eyes, or thinking without brains ; and we every day meet with instances of men, who, in consequence of disorders in their brains, in their eyes, or in their muscles, think, and see, and make efforts, very imperfectly.

These things many physical inquirers have laid too great stress on : by giving their whole attention to the instruments employed,

employed, they have overlooked the agent who employs them, or have mistaken the instrument for the agent, or confounded the two together.

Metaphysicians, on the other hand, have in general fallen into the very opposite error, and, by attending solely to the agent, have overlooked the share which the instruments had in those operations. Hence the supposition, that the mind, apart from all bodily organs, might have every faculty in higher perfection than we find them; and might be all eye, all ear, all intelligence, all activity. Now, though this be conceivable, it is in the highest degree improbable, as it is contrary to the analogy of every fact with which we are acquainted concerning the operations of mind.

Mind, therefore, separate from all bodily organs, might not, and probably would not, be by any means that kind of Being which I have occasion to reason about, and to compare with body, in order to observe

observe the difference between the relation of motive and that of physical cause.

Another circumstance of ambiguity in the use of the term *Mind*, might arise from the consideration of that term signifying a Being having certain attributes, and known only by them; which attributes are by no means inseparably connected. A person may live after losing one or more of his senses, after losing his memory, after losing the power of voluntary motion, and perhaps even of the voluntary effort, after losing all self-governing power; nay, after losing every kind of intelligence or thought. Such a Being plainly would not be the object of my investigation; and it might be a matter of endless controversy, to settle what or how many of the attributes of mind should intitle a Being to be called *Mind*.

As that is not the object of my investigation, I think it of consequence to avoid such controversies and ambiguities; and this I think cannot be better done than by specifying proper examples of the Beings

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that are to be compared together, as instances of mind under the influence of motives, and of body under the influence of physical causes.

As the best instance of *mind*, I take a living person, in the full use of all the common human faculties : As an instance of *body*, any thing conceived to be lifeless; such as a dead carcase, a stone, a ship, the earth, or the moon,

However philosophers may have differed about mind and body, I believe none of them have ever doubted that there is an infinite difference between a living man and a dead carcase; and that the former is, and the latter is not, sensible to motives, and possessed of intelligence; and that the latter, as well as the former, is subject to the influence of physical causes. It is of no moment in this inquiry, whether we say, that in the living person there is a mind united with a body, or call the living person a *Mind*. The nature of the things to be reasoned about is still the same.

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Nor must it be forgotten, that the circumstance of the full use of the common human faculties is of consequence. In the state of sleep, of drunkenness, of delirium, of madness, the self-governing power, like all the mental faculties, may be in very different degrees or conditions from what we find it in the living person when awake, and in the perfect state. It may be in very different degrees in the inferior animals, who, we conceive, have *minds*, though of a lower order than our own. And to these varieties it may be proper occasionally to refer for illustrations of the nature and degrees of the self-governing power, when once the reality of such a power is proved.

S E C T. V.

*Explanation of the Algebraical Characters and
Symbols employed in this Essay.*

AS the application which I propose to make of mathematical reasoning, and of algebraical notation, in this Essay, is new; and as I have occasion to express algebraically certain relations which never were expressed in that way before, and therefore having no proper symbols to denote them, must now be expressed by new symbols contrived for the purpose; it is necessary to explain particularly in what sense I employ all the different algebraical characters and symbols that I have occasion to use.

1. I employ the initial letters of the alphabet, A, B, C, to denote in general the obvious effects and actions, by which
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the unknown causes and motives are indicated and measured.

2. To denote, in general, the unknown causes or motives, I employ the final letters of the alphabet, X, Y, Z, as is commonly done in algebra, in order to mark distinctly and constantly what are known and what are unknown quantities.

3. I employ the common algebraical symbol for equality, $=$, precisely in its usual acceptation.

4. To denote the conjunction or exact concurrence of causes or motives, and of effects or actions, respectively, that is, motives with motives, effects with effects, &c. I employ the common algebraical symbol for addition, $+$.

5. To denote the direct opposition of motives or causes, and of actions or effects, respectively, I employ the common algebraical symbol for subtraction, $-$. This use of both these last-mentioned symbols

symbols has long been common in physics.

6. To denote the combination of causes or motives, and of effects or actions, respectively, which neither exactly concur, nor yet directly oppose one another, which is a relation (so far as I know) not hitherto expressed in algebra, and therefore has no peculiar symbol to denote it, I am obliged to employ a new symbol; and I think there cannot be a more proper one for the purpose than an abridgement of the well-known diagram for NEWTON's first corollary from the three laws of motion; thus, ∇ . It is well known to all who know any thing of science, that this corollary is the basis of a vast fabric of the most important physical knowledge, which all who understand it admit to be as firmly established as the abstract truths of pure geometry. And I think it may easily be shewn, that all of it depends on the just conception, and on the truth or reality, of that relation among causes and among effects, respectively, which I mean to express by the symbol in question; which relation,

lation, therefore, I consider as one of the most important and most general notions in physics; and mean to inquire, whether it extend to the voluntary actions of men, as well as to the phænomena or changes in inanimate matter.

7. To denote the relation of *constant conjunction*, which seems to take place between cause and effect in physics, and which it is maintained by Mr HUME subsists also between motive and action, as this too is a relation not hitherto expressed in algebra, and therefore not provided with any peculiar symbol to express it, I am obliged to employ another new symbol; and the one which I use is three little parallel lines; thus, \equiv . I prefer this symbol to any other for this purpose, on account both of its striking similarity to the common algebraical symbol $=$, and its obvious difference from it, which will in some measure enable us to keep constantly in mind, both the great affinity and the great difference between this supposed relation of cause and effect, motive and action, and the familiar relation of equality,

ty, or correspondence of quantities of the same kind.

It must be remembered always, that it is only among effects or actions, respectively, that are of the *same kind*, that such relations as these now specified can be supposed to subsist. But if the effects or actions be of the same kind, however different in kind the causes or motives of them may be, all those relations (except the last, which is the supposed relation between motive and action, cause and effect, and which it must be obvious comprehends the circumstance of quality or kind, as well as that of quantity or degree) may subsist between them. But if the effects or actions be not of the same kind, and if the causes or motives of them be applied at the same time to the same subject or person, then they *may*, and according to the doctrine of *constant conjunction* they *must*, take place at the same time, in the same subject or person, without in the least interfering with one another. It is therefore to be understood, that effects and actions respectively, of the same kind only,

ly, are the subjects of the following reasonings; those of different kinds, which may take place at once in the same subject or person, without interfering with one another, plainly not admitting of those relations that have been specified and explained; and being manifestly as incommensurable as lines, surfaces, and solids are with one another. As I have no occasion to consider the relation of simultaneous, but distinct, occurrence of effects and of actions respectively, that are of different kinds, and are incapable of being blended or compounded together, I think it unnecessary to propose any symbol for expressing it algebraically; but this, if required, might easily be done.

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S E C T.

S E C T. VI.

Difference between the relation of Motive and Action and that of Cause and Effect in Physics, stated in the form of a Proposition.—To be demonstrated by an argument ad falsum and ad absurdum.—Dilemma.—The relation of Motive and Action must be either a constant conjunction, or not a constant conjunction.—General necessary consequences of the notion of Constant Conjunction, expressed algebraically, and reduced to the form of Canons or Axioms.

AFTER so many preliminaries, it is time at last to state the chief proposition which I mean to prove with respect to the difference between the relation of motive and action and that of cause and effect in physics, and to proceed to the argument by which it may be demonstrated.

P R O -

P R O P O S I T I O N.

There is in mind a certain independent self-governing power, which there is not in body; in consequence of which there is a great difference between the relation of motive and action and ~~that~~ of cause and effect in physics; and by means of which a person, in all common cases, may, at his own discretion, act either according to or in opposition to any motive, or combination of motives, applied to him; while body, in all cases, irresistibly undergoes the change corresponding to the cause, or combination of causes, applied to it.

To demonstrate this, I assume the direct contrary supposition with respect to mind, and suppose it to have no such self-governing power, any more than body has; and that all our volitions, determinations, and actions, come to pass in consequence of the motives applied to us, as irresistibly on our part as the changes or effects in body do from the application of

physical causes; and trace the necessary consequences of this supposed *inertia* of mind, and influence of motives, to conclusions that are either false or absurd, in the following manner.

The relation of motive and action *must* be either a constant conjunction, as that of cause and effect in physics seems to be, or not a constant conjunction, that is, an occasional and separable conjunction.

If the relation of motive and action and that of cause and effect in physics be a constant conjunction, the most obvious and general necessary consequences of it *must* be such as may be expressed accurately by the following algebraical formulæ, or canons, of universal application.

$$X \equiv A.$$

$$Y \equiv B.$$

$$Z \equiv C.$$

$$X + Y \equiv A + B.$$

$$X - Y \equiv A - B.$$

$$X \supset Y \equiv A \supset B.$$

As

As this mode of expression must be new to every person, it may be necessary to point out how the preceding formulæ are to be read. It is thus :

If a certain cause or motive X is constantly conjoined with a certain effect or action A, and if another cause or motive Y is constantly conjoined with a certain effect or action B, of the same kind with the action or effect A, and if no other cause or motive Z constantly conjoined with a certain effect or action C, of the same kind with A and B, interfere; then when X and Y are applied at the same time to the same subject or person, and directly concur, the effect or action consequent upon them, or, in the language of the system, constantly conjoined with them, *must be* A and B jointly, concurring or added together, and *more than* either of them singly, by the whole amount of the other : When X and Y directly oppose and counteract one another, the effect or action constantly conjoined with them *must be* A opposed and counteracted by B, and *less than* either of them singly by the whole amount

amount of the other : And when X and Y applied at the same time to the same subject or person, neither directly concur, nor yet directly oppose one another, they *must be* constantly conjoined with the effect or action A, combined with or modified by the effect or action B, and *different from* either A or B taken singly. And the difference between the result of such a combination of causes or motives, and that result which would have taken place if only one of them had been applied, *must be* equal to the full effect of the other.

The peculiar advantage of these general algebraical expressions, or *formulae*, which I shall frequently have occasion to make use of, and refer to as a sort of canons, is, that they are not only more distinct, accurate, and concise, but more comprehensive, than expressions of the same thoughts or conclusions in common language could easily be made; and at the same time carry most distinctly their own evidence along with them. They are in truth, like other algebraical *formulae*, a kind of distinct short hand.

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As this mode of expression, and indeed of reasoning, on such a subject, cannot be familiar to every person, nor perhaps be apprehended at once, I take the liberty to point out, what otherwise it would be impertinence to point out to men of science, that if $X - Y \equiv A$, then $Y \equiv B$ is separated from its effect or action; which is contrary to the principle. And the same must be equally obvious with respect to the other two cases, or canons, of $X + Y$ and $X \sqsubset Y$, if it be found or supposed, that they are $\equiv A$, instead of $\equiv A + B$, or $A \sqsubset B$.

This simple but comprehensive mode of reasoning, and the three canons which I have offered as the result of it, I wish to be carefully examined; for much depends upon them. If the reasoning is found to be unsatisfactory, and the canons false, in short, if any person of competent judgment can *bona fide* refuse his assent to them, every argument founded upon them must of course go for nothing. But if the reasoning is found to be just, and the three canons be admitted as necessary inferences
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from the principle of *inertia* in the subject or person, and of *constant conjunction* of cause and effect, motive and action, (which supposition of itself fully implies the *inertia* of the subject), then every instance of the exact concurrence, of the direct opposition, or of the combination, of cause and effect, or of motive and action, must be admitted to have necessarily the consequence expressed in the corresponding canon; and to deny this, or to reason against it, or to endeavour to assign a reason why such a result should not take place in any particular case, must be an absurdity. For those three canons comprehend, and must apply to, every possible case of the application of causes or motives to the same subject or person at the same time, and that produce effects or actions of the same kind; which consequently cannot take place separately, or without interfering with one another. Nor can we conceive a fourth way in which causes or motives constantly conjoined with their effects or actions, and having effects or actions of the same kind, may be applied to a subject

ject or person, any more than we can conceive a fourth dimension of body.

Let it be observed too, that those three canons are of the nature of axioms. They are self-evident necessary truths, bearing that relation to the notion of constant conjunction, which the axioms of geometry bear to the notion of quantity; and if the former notion, as well as the latter, be admitted to be just, they are axioms to all intents and purposes.

Z

SECT.

S E C T. VII.

Illustrations of the exact import of the reasonings in the preceding section.—Instances of the truth of the inferences from the principle of Constant Conjunction in cases of Cause and Effect in Physics; and of the plausibility of them in many cases of the relation of Motive and Action.

THough I regard the reasoning in the preceding section as perfectly satisfactory and unquestionable; yet I am far from thinking that this supersedes the necessity of illustrating it very fully: for though both the subject and the reasoning be sufficiently simple, yet it must be owned, that they are both very abstruse, and no common, and consequently no easy, objects of attention. But I think they may be explained and illustrated by proper instances, in such a manner, that a child of
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ten years of age, of ordinary capacity, shall easily and fully understand them. Indeed little more is required to enable a person to understand them, than that he should understand or should be capable of learning arithmetical addition and subtraction.

It is plain, in the first place, that either causes or motives may be applied singly; and if the conjunction of cause and effect and that of motive and action be constant, every cause or motive singly applied will be followed by its proper effect or action.

Thus, a body will move from impulse, melt with heat, or dissolve in its proper *menstruum*; and a man will eat because he is hungry, drink because he is thirsty, run away because he is afraid, do kind actions from benevolence, and commit cruel and unjust actions from anger, malice, or rapacity. And this is expressed by the simple *formule* $X \equiv A$, $Y \equiv B$, &c.

In the second place, it is equally plain, that different causes or motives may be conjoined, that is to say, may concur in producing one kind of effect, or in prompting to one kind of action; and a greater effect or action of that kind will be produced by such a concurrence of causes or motives, than by any one of them singly applied.

Thus, a ship under sail with a favourable wind, will move with a certain velocity; and with a greater, if at the same time she is in a favourable current; and with a greater still, if at the same time she is taken in tow by a ship that sails faster than she does; or if she is impelled by the force of oars, when these can be used. And a man who will do a good deal from a sense of duty, and more from duty and honour and interest conjoined, will do still more when there is superadded to these motives the terror of military discipline. This case of the application of causes or motives, and the necessary result of it, according to the principle assumed,

med, is expressed by the first canon, $X + Y = A + B$.

In the third place, it must be evident, that either causes or motives may be directly opposed by other causes or other motives. If the opposite causes or motives are of an equal force or strength, the more powerful will prevail.

Thus, a ship will advance against an adverse current, if the velocity in one direction which she acquires from the wind is greater than what she would acquire in the opposite direction, from the current. And a soldier will face any danger in the way of his profession, if his sense of duty, of honour, of interest, or even his dread of punishment, are with him stronger motives than fear of the enemy; but he will run away, if this fear be the stronger motive.

If the opposite causes or motives are equal, then they will exactly balance each other, like equal weights in the opposite scales of a just balance; or like a ship under

der sail with a velocity equal to that of an adverse current, which in this case she will just stem, so as to remain in the same place relatively to the shore; or like the ass, in the well-known imaginary case of the two equal and similar bundles of hay, placed at equal distances, one on each side of him. This case of the ass appears to me (as I believe it has universally been thought) a very fair and explicit one; and I wish it to be carefully attended to, as I mean to make an important use of it: for though it cannot reasonably be said to contain either truth or sense, yet it undoubtedly contains the means of getting at truth, and of detecting nonsense. But of this afterwards.

The mutual destruction or prevention of the effects of equal and opposite causes or motives, is as obviously and necessarily implied in the notion of *constant conjunction*, as the principles of addition and subtraction are in the notion of number. And to set about proving, that when 10 is deducted from 10, there must remain nothing, or that $A + B - A = B$, or that

a just balance, with 10 pound weight in each scale, must remain even, or that a ship will not advance against a current which sets her back as fast as the wind sets her forward, would most deservedly be regarded as arrant trifling: they are all such things as no person of sound judgement ever doubted, or can be supposed to doubt of. But it must be observed, that our belief of such of them as relate to physics depends entirely on our conviction, or, more properly speaking, on our uniform and natural conception, of the absolute incapacity of a body to move itself, and of the constant conjunction of cause and effect. For if either or both of these things were otherwise, the conclusions respecting the ship and the balance would often be found false upon trial; nor would they even be expected or supposed, *a priori*, to be true. The ship might be expected to go, and in fact would go, sometimes with the wind, sometimes with the current, according as the one or other of them was separated from its proper effect on her sails, or on her hull; and if the ship were not incapable

pable of moving herself, though neither the wind nor the current were separated from their effects, she might move in the direction of either of them, or in one perpendicular or oblique to both. And the corresponding conclusions with respect to the balance must be equally obvious. If the conjunction of cause and effect in the employment of that instrument were not constant, and the instrument absolutely incapable of moving itself, we never could have any reason to rely on a balance as a just one.

The *inertia* of body, or its incapacity to move itself, or in any way to change its own condition, is implied in the notion of body, as completely as divisibility is implied in the notion of time, space, or number; or as the equality of the four sides and angles is in the notion of a square. A *Being* capable of moving itself, or in any way changing its own state, is not what we call *Body*.

The fundamental principles of geometry are all necessary truths; the contrary
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of them, in every instance, being not merely false, but impossible and absurd.

The principle of the constant conjunction of cause and effect, which is a fundamental principle in physics, may, for aught we know, be only a contingent truth; nay, it may be supposed no truth at all. A person may be conceived to doubt of it, till he can find some evidence of its truth. And, in fact, there are innumerable cases, as, for example, the elective attractions in chemistry, which, on a superficial view, might incline us to disbelieve it; though, when strictly examined, they all afford proof, or at least additional instances of it. Yet it is very remarkable, that, notwithstanding the vast number of instances seemingly in opposition to it, which even men of science (as I have actually found) are sometimes disposed to insist on, and the very small proportion of mankind that can be supposed to have examined those obscure or doubtful cases with such accuracy as to discover the truth in them; yet few or none, even of the rudest and most ignorant of mankind, seem ever to have

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doubted

doubted of the constancy of the conjunction of cause and effect, or would fail to regard any instance to the contrary as a miracle. This seems to indicate, that the conception of the relation of cause and effect, as well as the conviction of the necessity of a cause in certain cases, depends not merely on observation and a sort of rude induction, but on some fundamental principle of the human understanding. This persuasion must be considered more fully afterwards. But supposing it a truth, all the conclusions hitherto drawn from it are necessary consequences of it: and as they are all found experimentally true as matters of fact, in innumerable instances, we have every reason, which the nature of the subject admits of, to believe, that the principle of constant conjunction of cause and effect in physics, whether it be a necessary or only a contingent truth, is at least an established law of Nature.

This case, of the application of causes or motives at once, which directly oppose one another, and the necessary result, according to the principles assumed, is expressed

pressed by the second canon, $X - Y \equiv A - B$.

Lastly, It is plain, that various causes or various motives may be applied at once to the same subject or person, in such a manner, that they shall neither concur exactly, nor yet directly oppose one another; and this without any regard to their being equal or unequal in force. This case we shall call, exclusively, the *combination* of causes or motives. Now, if it be true that bodies and persons are equally incapable of moving themselves, or of changing in any way their own state; and that the relation both of cause and effect, and of motive and action, is a constant conjunction; then, in every such case of a combination of causes or motives, there *must* be a corresponding combination in the effects or actions produced.

Thus, a ship sailing in a current at right angles to her course, will advance in consequence of the impulse of the wind on her sails; but at the same time will deviate from her course in consequence of

the influence of the current on her hull. A ship, or indeed any *body*, in this or any similar situation, will describe the diagonal of a parallelogram, whereof it would have described one or other of the two contiguous sides, if the causes of its motion had been applied singly; and it will describe that diagonal in the same time that it would have described either of the contiguous sides of the parallelogram separately. And a body under the influence of what is called a *centripetal*, and a *projectile* or *tangential* force at the same time, will describe a portion of some conic section in every moment that its motion continues. All these things are well known by experiment and observation as matters of fact: and, moreover, they are demonstrated by Sir ISAAC NEWTON, in his *Principia*, as necessary truths.

In like manner, a person under the influence of different motives, which neither perfectly concur nor yet directly oppose one another, will act in a different manner from what he would have done

if

if only one of the motives had been applied.

Thus, in the well-known story of the Decemvir *Appius Claudius* and *Virginia*, we conceive, that a violent desire to get possession of the person of *Virginia*, more powerful than any considerations of virtue, prompted the Decemvir to endeavour to do so *per fas aut nefas*. If this motive had been applied singly, or opposed only by those weaker motives which justice, humanity, or chastity suggested, we conceive, that it would have prompted him to employ direct and open violence, of which he had the means in his power, as the surest and readiest way to accomplish his purpose. But then prudence, fear of the indignation of the Roman people, and perhaps some other less obvious motives, urged him to avoid giving any offence by an open and violent exercise of his power; and induced him to have recourse to art and fraud, in order to gain his end with the appearance of law and justice. His conduct accordingly was the result of the mixture or combination of such

such different motives, and plainly different from what it would have been, or by any judicious person would have been expected to be, if only one of those motives had been applied.

Every such case of the combination of causes or motives, and the *necessary* result of it in effect or action, according to the principle assumed, is expressed by the third canon, $X \curvearrowright Y \equiv A \curvearrowright B$.

All the preceding instances of the relation of human actions to the motives of them, and of the analogy and resemblance between the relation of motive and action and that of cause and effect in physics, I have expressed cautiously, and in those vague, ambiguous, and hypothetical terms, which have been too generally employed on this subject, and have by many philosophers been thought rational and satisfactory. They are all such instances as I have occasionally heard given as illustrations of the doctrine of Necessity, and as proofs of the close and striking affinity, or rather indeed of the perfect identity,
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of the two relations in question. Few people, I believe, will think them overstrained, and fewer still will suspect, that, if taken literally as they are stated, they are all falsities, absurdities, and little better than nonsense; which yet they certainly are.

For it must be observed, that on such a point as this, it is not sufficient to give a few instances, even though they were all accurately expressed, and undoubtedly true, as a proof of the principle in question. For if *it* be true, then all those general inferences from it, of which I have given only a few examples, will be necessarily and universally true in every particular instance. And if in any case it be found, that they are not true as matters of fact, when the proper experiment is fairly made, it must be admitted, that the principle of which they are necessary consequences is false. For it may well happen, that the resemblance between the two relations in question shall be striking, and pleasing, and very generally observable; while yet the difference between them, though in
many

many cases obscure, and in some hardly perceptible, may be real and highly important : And this I believe is actually the case. But it is one of the chief objects of science in many cases to discover such differences among things, as the most effectual, or perhaps the only, means of extending our knowledge of them.

S E C T.

S E C T. VIII.

Further instances of the truth of the three Canons, in Mechanical Philosophy, and in Chemistry: and of striking analogy to them in Vegetation, and in Sensation, and Belief; in which occurrences or operations, though there be a different relation between the event observed and the principle of Change, and in some of them a different principle of Change from what there is in cases of Cause and Effect in inanimate matter; yet there is either no optional or discretionary power, or but very little of it, in the subject, with respect to the Change that takes place.

ALL the general inferences expressed by the preceding formulæ $X \equiv A$, $X + Y \equiv A + B$, $X - Y \equiv A - B$, $X \sqsubset Y \equiv A \sqsubset B$, are found experimentally true as matters of fact in numberless instances of cause and effect in physics. We know not of any exception to them in physical science; and have therefore every reason which the nature of the thing admits of

to believe, that they are universally true with respect to physical causes and effects. Hence we must infer, that the principles from which they are deduced as necessary consequences, to wit, the incapacity of body to change its own condition, and the constant conjunction of cause and effect, are just principles or laws of Nature.

This point it may be of some consequence to illustrate more fully: for it is of much importance in an attempt to investigate the nature of the relation of cause and effect in physics; though it is by no means essential to the immediate object which I have in view in this section. For at present my object is not to prove, that such *is* the nature of body, and that such *is* the relation of cause and effect, but that such *is not* the relation of motive and action; in order that I may be enabled to reason by necessary consequences to some further conclusions respecting this latter relation, and the nature of mind, or of living persons, when it is shewn, that the conjunction of motive and action is but occasional and separable.

And

And I shall endeavour further to illustrate the same principle, and its obvious necessary inferences, by the nearly corresponding result of similar combinations of the principles of change in certain operations of mind, which are either wholly or partly involuntary, such as sensation and belief.

For this purpose, I shall give some instances of the truth of the necessary inferences already stated, and consequently of the truth of the two principles assumed, in three different branches of physical science, mechanical philosophy, chemistry, and physiology; each of which is in some measure regulated by certain laws peculiar to itself, while all seem to be subject to those two more general laws.

Perhaps it will be thought needless, or little better than begging the question, to offer instances of the truth of conclusions deduced from the principle of the inactivity of body, and that of the constant conjunction of cause and effect, from the phenomena of mechanical philosophy, as every person in the least acquainted with

this branch of science knows, that in it there is not even a suspicion, among men of competent judgement and knowledge, of any exception to either of those two principles. And I believe such a supposition would at once be pronounced, not merely false, but absurd, even by the vulgar.

Nevertheless, as mechanical philosophy affords many of the best understood and most distinct and obvious examples of the truth of the inferences and of the principles in question, I shall just mention, but without offering any commentary in proof of them, which I am sure would be needless, that the well-known phenomena of the motions of the comets and planets, and the irregularities of these motions from the mutual influence of the moving bodies on one another, and the tides from the tendency of the ocean to the sun and moon, and the inclination of a pendulum towards a mountain, and the curvilinear paths of bodies projected obliquely near the surface of the earth, and the retardation, and at last the ceasing, of the motion

tion of a body projected directly upwards, and the acceleration of the motion of a heavy body, when falling unresisted, or little resisted, and the retardation or ceasing of motion from the resistance of the air, or from friction of any kind, plainly shew, that no difference of the kind, or of the direction of the causes applied, and that no disproportion of the quantity of these causes, ever separates, even in the smallest degree, or for a single moment, a cause from its effect. Nor do any of these phænomena afford the smallest proof or presumption, that a body can ever begin, or vary, or prevent, or stop, its own motion.

Chemistry affords innumerable instances of the truth of the same general inferences, and consequently of the principles; and we uniformly rely upon them in chemistry, as well as in mechanics. It would be needless to enumerate instances of the effects of heat singly applied in producing expansion, fusion, or evaporation; of acids and alkalis on the blue vegetable tinctures, of various *menstrua* on substances which dissolve in them; of the concurrent effects

effects of heat and *menstrua* in producing solution in many cases; of heat and cold, of acids and alkalis, opposing one another, and preventing or undoing each other's effects, either wholly or partly, according to their several proportions in different cases. But it may be worth while to point out, that the same general principles afford to men of real philosophic genius, and extensive chemical knowledge, the means of explaining some of the most important phænomena in natural science; just as NEWTON's first happy corollary from the laws of motion, enabled him to make such wonderful progress in the theory of astronomy, and in other branches of mechanical philosophy.

It has been shewn by an ingenious chemist *, that the complete solution and permanent suspension of water in air, depends partly on the effect of the air on the water, partly on the effect of heat; and

* Dr HUTTON of Edinburgh, in an Essay read before the Royal Society of Edinburgh in 1784.

that

that the effect of heat in this way is greater than in proportion to the increase of temperature as measured by the thermometer. Hence he very justly infers, that when two portions of air of different degrees of heat, and both of them saturated with water, are mixed together, the whole quantity of water cannot be retained in a state of solution; and that part of it must immediately precipitate. This is found experimentally true as a matter of fact, and is the basis of a satisfactory theory of the formation of rain and snow, &c. and, in general, of the condensation of vapour in the atmosphere.

The same author, in his observations and reasonings * concerning the formation of the various *strata* which compose a great part of the surface of this globe, and concerning the effects of heat on those *strata*, very properly pointed out, that we must not suppose the effects of heat on the substances which compose such *strata* to

* Read before the R. S. E. in 1785.

have

have been precisely the same, along with the vast pressure which must have been applied at the same time in the bowels of the earth, and without the admission of air, that they would have been, if air had been freely admitted, and little or no pressure had been applied. Such remarks and reasonings I conceive to be highly judicious and important, and strictly philosophical; not merely on the faith of the analogy of many familiar instances of solution with or without heat, and of fusion or calcination, or resuscitation, according to the other circumstances or causes applied along with heat; but likewise as results to be expected *a priori*, as being necessary consequences of the acknowledged inactivity of matter, and the supposed constant conjunction of cause and effect. We cannot indeed, for reasons which it is unnecessary here to consider, in every case foretell what particular effect will be the consequence of a certain combination of causes. In some cases, however, we can do this; as in mechanical philosophy. But in all such cases of the combination of causes, we can foretell, that the effect will be different from

from that of either of the causes applied singly. And the same may be said with respect to the effects of the exact concurrence or the direct opposition of different causes.

The physiology of vegetables affords some familiar and unquestionable instances of the same general and important truths. But before mentioning any of these, it is proper to premise, that, independently of any influence or operation of what we commonly call *Mind*, there is, in every case where either animal or vegetable life is concerned, a different relation between the cause and the effect, and seemingly depending upon the concurrence or influence of some further principle of change in the subject, than what subsists in inanimate matter, or in the causes and effects that are the objects of mechanical and chemical philosophy. And where-ever the action or operation of *mind* is concerned, the difference of the relations in question becomes still greater; but still there is much analogy between them; and I be-

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lieve the terms *Cause* and *Effect* are almost indiscriminately applied to both.

Thus, light, and heat, and air, and water, and earth, and perhaps many other principles, blended with these, or unknown to us, are regarded as causes of vegetation; not indeed purely and completely, but in concurrence with the principle of vegetable life, without which, in a seed or in a plant, vegetation will neither begin nor continue, though all the other causes should concur in the utmost perfection. Even when this principle of life is present, the other causes taken singly are not constantly conjoined with effect in point of vegetation. Any one of them may be applied in vain; nay more than one of them; as light, air, and earth without heat, or all of these without moisture. Yet, where the circumstances are such that vegetation does go on, the effect of any of the external causes in contributing to the general result, is sufficiently obvious. The different growth of the same kind of plant, in a very poor and in a richly manured soil, in a very dry or in a wet,

wet, in a hot or in a cold season, is well known to every peasant. The consequences of with-holding light, or a due supply of air, from a growing plant, have been ascertained by experiments. From want of light, the plant loses, or never acquires, its proper colour, smell, and taste; and from want of either light or air, it becomes feeble and sickly; unlike the flower *Quem mulcent auræ, firmat sol, educat imber*. In one well-known instance, the leaves of a plant which are fibrous when they grow under water, become broad when they are exposed to the air.

We have innumerable corresponding instances in sensation. I acknowledge sensation to be an act of the mind, and in part even a voluntary act, in so far at least as it depends on attention, which to a certain degree is voluntary. But then it must be observed, that sensation is, in part at least, an involuntary act: we can neither have it when we please, nor avoid having it when the proper causes of it are applied. And it must be admitted, that even in sensation there is a certain chain of causes

and effects; that the change of state occurring in an organ of sense, in consequence of an impression made on it, to which change, in ordinary and favourable circumstances, our sensations very exactly correspond, may fairly be regarded as the effect of a certain cause, or combination of causes, applied. Therefore, while I acknowledge the important difference, I hope I may fairly make use of these strong circumstances of analogy, between sensation and effect in inanimate matter: the incapacity of *feeling* (I use here the term in its most general acceptation) at pleasure, corresponds to *inertia*; the inseparable connection, in ordinary cases, between the impressions made on the organs of sense and the sensations arising from them, corresponds still more nearly to the constant conjunction of cause and effect in inanimate matter. And from these circumstances of analogy, notwithstanding the differences, result the same general inferences as in pure physics, respecting the single application, the exact concurrence, the direct opposition, and the combination of impressions or causes, of sensations
or

or effects. We shall here consider only the last of them, the case of combination of impressions, as being the most curious and satisfactory of them all.

It is well known, that in numberless instances, where various impressions, naturally producing sensations of the same kind, are made on an organ of sense, either exactly at once, or in very quick succession, so that the former shall not have ceased when the latter have begun, instead of the simultaneous or successive separate sensations, corresponding to every single impression, we experience a sensation different from what we should have had from any one of the same impressions, if it had been made singly on the organ of sense.

Thus, the taste of most kinds of food, and of liquors, which we commonly use, is the result of the combination of two or more impressions, different from one another, and each of them of such a nature, that if it had been made singly, we should have experienced a sensation very different

different from what results from the combination of them. The same may be said with respect to smells; or with respect to sounds, as in music.

But we have the most complete and beautiful illustration of the principles in question, from the sense of sight, and in the case of colours; where the difference between the sensation consequent upon any one of the impressions when made singly, and that resulting from a combination of different impressions, is peculiarly striking. The mixture, either by simultaneous combination, or by very quick succession, of impressions on the same points of the *retine*, which singly would have produced in us the perception of blue and of yellow, gives us the perception neither of blue nor of yellow, but of green. It may be observed too, that this result takes place even when those different impressions are made singly, one on the right eye, the other on the left eye, provided they be made at the same time, and on corresponding points of the two *retine*; for instance, on the centre of each: for
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in this case both colours are seen in the same direction or visible place. And the shade or kind of green, or its approximation to blue or to yellow, corresponds to the proportion of the two impressions which would have been attended, if made singly, or on points of the *retina* that did not correspond, with the distinct and separate perception of these two colours. The same may be said of the combination of all other colours in various proportions with one another; or of the mixture of white, or of black, (which last we regard only as the opposite of all colour, or the privation of colour), with different colours, which they always render lighter or darker. And it is well known, that the combination of such impressions as singly would have given us the perception of all the rainbow colours, in certain proportions, gives us the perception of none of them, but of pure white.

It may be proper here to mention, though it is plainly a circumstance that can require neither proof nor commentary, that where the effects resulting from
several

several different causes applied at once are so incongruous in their nature or kind, that they cannot be combined so as to form what is called a *Tertium quid*, still the conjunction of cause and effect appears to be constant; for each cause is followed separately by its proper effect.

Thus, when a red-hot ball is projected obliquely to the horizon from a canon, by the combination of the projectile force, and of gravity, and of the resistance of the air, it describes a certain irregular curve. The result in this case is an effect different from what would have taken place from any one or two of those causes without the rest. The ball at the same time becomes gradually cooler, and harder, and denser, and less luminous, by the diffusion or dissipation of its heat. These effects do not admit of combination with the others, so as to modify the path of the ball; but yet they are as constantly conjoined with their respective causes, as the others are with theirs; and the contrary opinion, if not absurd, would at least be very foolish.

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In like manner, where sensation is concerned, if the sensations, resulting from the different impressions made on our organs of sense, be of such different kinds as not to admit of any composition or mutual modification, each takes place singly; and we can, at least in most cases, attend to any one of them by itself, or perhaps to several of them together. But this last circumstance is a matter of dispute among philosophers. Thus, when a person grasps a ball of iron in his hand, and at the same time looks at it, he perceives, by means of different impressions, either at once, or in any order in which he may chuse to attend to them, that it is extended, figured, coloured, solid, hard, heavy, hot or cold, rough or smooth: whence it appears plainly, that these several sensations, in so far at least as they are *effects*, and not *actions* of ours depending on our attention, and consequently to a certain degree on our will, are constantly conjoined with their respective causes.

We have another good instance of analogy to the result of the composition, opposition,

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position, and combination of physical causes, in the case of that state or act of the mind which we call *Belief*. This state of the mind corresponds to, or, as we commonly express it, is determined or regulated by, evidence of various kinds. Like sensation, it is almost or perfectly an involuntary act of the mind. We can neither believe nor disbelieve as we please, but according to the evidence which we have. The utmost we can do by any voluntary effort towards regulating our belief is to listen or attend, or avoid and refuse to listen or attend, to the evidence in any particular case; but when we do attend, our belief follows of course according to the evidence.

Evidence, however, is not, strictly speaking, constantly conjoined with belief, as physical causes seem to be with their effects: for different kinds of evidence are competent to different subjects of belief, and have no weight or influence in producing belief on other subjects, or in opposition to other kinds of evidence.

Thus,

Thus, the intuitive evidence of an axiom, and the distinct conclusive evidence of demonstration, produce firm and perfect belief, not to be shaken, nor confirmed, nor any way modified, by the evidence of experiment, or of induction, or of sensation, or of testimony. As little can demonstration be offered as evidence, in opposition to experiment, or sensation, or consciousness, with respect to any matter of fact.

Moreover, the belief or conviction which we have of the truth of an axiom, or of a theorem demonstrated, admits of no degrees; nor can it be confirmed by any other axioms or demonstrations.

We have no reason to think, that there ever can be any opposition of intuitive evidence; that is, any contradictory axioms. As little can there be contradictory demonstrations by just inferences from genuine axioms. But if there were such an apparent opposition of intuitive or of demonstrative evidence, in consequence of the undetected fallacy of certain princi-

ples rashly admitted, or of the reasoning employed, we have reason from analogy to think, that the seemingly equal and opposing evidences would completely destroy each other's influence, that no belief on either side could take place, and that we should inevitably remain in uncertainty and doubt.

Such is the case with respect to opposing demonstrations from principles arbitrarily assumed or established; as, for example, express laws, which either directly, or in their remote consequences, may be inconsistent; or special compact among individuals, which, according to particular circumstances, may lead by the most irrefragable reasoning to inconsistent conclusions.

The well-known ancient story of the double dilemma, or dilemma retorted, is a good instance of this result. *Euatblus* promised *Protagoras* a reward when he had taught him the art of pleading; and it was to be paid the first day that he gained any cause in the court. After a considerable

considerable time, *Protagoras* goes to law with *Euathlus*, for the reward; and uses this dilemma: "Either the cause will go on my side or on yours: if it goes on my side, you must pay me according to the sentence of the judge; if it goes on your side, you must pay me according to your bargain: therefore, whether the cause goes for me, or against me, you must pay me the reward." But *Euathlus* retorted the dilemma, thus: "Either I shall gain the cause or lose it: if I gain it, then nothing will be due according to the sentence of the judge; but if I lose the cause, nothing will be due to you according to my bargain: therefore, whether I gain or lose the cause, I will not pay you; for nothing will be due to you."

I think it is said, that the court, unable to decide in favour of either party, ordered them both to appear in court again an hundred years afterwards, to receive judgement. This may be regarded as virtually a decision on one side; and, in point of equity, it may be thought on the wrong one; but it was at least an acknowledgement
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ment of the impossibility, which every person must perceive, of giving judgement in favour of either party, according to the express terms of their compact, and the necessary inferences from them; or *believing* that the one party had a better right to exact than the other had to withhold the stipulated reward.

We have reason to think, that in physics accurate experiment and strict induction will never afford opposing or inconsistent evidence. But as our experiments are often inaccurate, and our induction rash and imperfect, such an apparent opposition frequently takes place, and doubt, instead of belief, is the result, at least with those who attend equally and impartially to the evidence on both sides of a question. This is the case at present with many candid and intelligent chemists with respect to the existence of something called *Phlogiston*, and with respect to the composition or decomposition of water, of metals, of different kinds of air, and of inflammable substances, in various processes.

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With respect to belief founded on the evidence of our senses; it is a matter of much nicety, and little to the purpose of this argument, to distinguish accurately between direct sensation, or perception, and the quick, but sometimes erroneous, inferences with respect to the objects around us, which we are accustomed to draw from our sensations. But taking the two together, as we generally do in common life, it must be evident, that we often have simple, sometimes concurring, sometimes opposing evidence from them; and this sometimes clear and strong, sometimes obscure and feeble. Corresponding to these varieties of the evidence, we experience varieties in the result with respect to belief, from the persuasion of the slightest probability, to the most irrefragable conviction, or inextricable doubt: As, for example, in the common occurrence of judging of the *genus* or *species*, or even recognising the individual by means of our senses. As in the case of *Isaac* when he was blind, and *Jacob*, instructed and disguised by his mother, came to obtain his blessing: "The voice
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“ is *Jacob's* voice ; but the hands are the “ hands of *Eſau*.” In moſt caſes of belief from ſenſation, any apparent oppoſition of the evidence is ſoon removed, by repeated and careful examination of the objects and the ſenſations ; but in many caſes of belief from what is called *circumſtantial evidence*, or even from direct testimony, we have not that reſource ; and accordingly experience irrefiſtibly the various degrees and ſtates of probability, conviction, or doubt, according to the nature, the amount, the concurrence, the combination, or the oppoſition, of the evidence before us.

Thus, one or two circumſtances, perhaps trivial in themſelves, will make us think a certain point, for example the guilt of an accuſed perſon, probable in a certain degree. More concurring circumſtances will render that point more and more probable, till at laſt we cannot doubt of it, even though we have no direct evidence, either by ſenſation or testimony. And according to thoſe circumſtances we experience the belief of various particulars

lars relating to the principal point in question; but if any circumstances, in opposition to those first observed and attended to, are discovered, then we fall into doubt, and can no longer believe.

This kind of opposition of evidence happens often where belief is to be regulated merely by human testimony, and where some advantage is to be gained by one or both parties by falsehood and perjury. Customhouse-officers have observed, that smugglers have an uncommon latitude of conscience in this respect; and smugglers are very apt to return the compliment. Certain it is, at least, that in some trials relating to smuggling, ten, twenty, or more witnesses, on one side, have sworn in direct opposition to an equal number of witnesses on the other, with respect to a plain matter of fact, such as a ship being in a certain place, or within a certain distance of the shore, at a particular time; the truth of which fact they must all have known perfectly. Jurymen are astonished, and even experienced lawyers and judges are sometimes confounded, with such con-

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tradictory testimonies; nor can any of them believe in such a case, till something be brought to light that shews on which side the perjury is; then the belief on the other side follows of course; for the testimony of perjured men is no evidence, nor ground of belief.

Testimonies concerning the same subject, not inconsistent, though different, admit of combination; the result of which is a combination of belief, or modified belief, with respect to that subject. Thus, if some mariners of good character, on their return from a voyage, should declare that at a certain time they had seen, in latitude 30° north, a vessel, which, from particular circumstances, they judged to be a certain ship, those interested in that ship (if they knew of nothing to the contrary) would experience from their testimony some belief; they would at least think it probable that their ship was in the latitude specified at the time mentioned; and might reasonably be supposed to regulate their conduct with respect to their ship according to that persuasion. If another

other set of mariners, of good credit, belonging to another ship, should come and declare, that about that time, and nearly in that latitude, they had seen that very ship, and conversed with the people on board, and found them all safe and well, this would confirm the belief produced by the former testimony, and convert the persuasion of probability into conviction. But if another set of mariners, as numerous and of as good credit as the two former sets, should come and declare, that they had seen that ship, at the time mentioned, in latitude 30° south, the crew sickly, and the vessel leaky and dismasted, those interested in the vessel would be left in doubt and anxiety, from the opposition of the evidence. But if the last set of witnesses had testified only, that they saw the ship in question at the time mentioned, in longitude 30° west, but without knowing the latitude, and had learnt from the crew that they had met with a storm, but escaped unhurt, as there would be no opposition of evidence, but only a combination of it, and as the evidence would be in every respect competent and equal, the belief of

those concerned would in every respect correspond to it.

These various instances of belief I have considered with a degree of minuteness that may appear unnecessary; but it is of consequence to examine such cases accurately, in order to perceive more clearly the difference between the result in them and that in corresponding cases of motives and voluntary actions. The perfect correspondence of them, where the evidence is of the same kind and authority, to the *formule* stated in the beginning of this section, and the dependence of the result on the want of any optional or discretionary power in a person, with respect to belief, can neither require nor admit of proof.

SECT.

S E C T. IX.

*Inference from the doctrine of the Constant
Conjunction of Motive and Action, which
is demonstrated as a necessary consequence of
it, and yet is notoriously false in point of
fact.*

ANY man of tolerable ingenuity, or
even industry, who will take the
trouble to search for instances of the ana-
logy and resemblance between the rela-
tion of cause and effect and that of mo-
tive and action, will easily find many
thousands of cases, which may be con-
strued into instances of the assumed prin-
ciples with respect to the latter relation,
and regarded as good illustrations of the
necessary inferences which have been
drawn from those principles. But every
man of observation and candour must
know and acknowledge, that there are
thousands

thousands of familiar instances in direct contradiction to those inferences and principles, any one of which is sufficient to prove them false : for as the inferences are all strictly necessary, if the principles from which they are deduced be just, they must be universally true ; and an exception to them is a refutation of one or other, or both, of the principles assumed.

And it is chiefly on this account that the principle of *inertia* of mind, and that of the constant conjunction of motive and action, are expressed separately in this argument : for though the former is fully implied in the latter, this is not mutual ; the *inertia* of mind may be conceived, even though the relation of motive and action should be, not a constant, but an occasional and separable conjunction.

I shall consider, successively, instances of all the three cases of the combination, opposition, and concurrence of physical causes, and of motives, respectively, in order to shew the difference between the
seemingly

seemingly constant conjunction of cause and effect in physics, and the manifestly occasional and separable conjunction of motive and action.

See Diagram I.

If any cause be applied to a *body*, in consequence of which it would move with a certain velocity in the direction A B, and no other cause be applied, which might either accelerate or retard its motion, or alter the direction of it, it will describe the line A B in a certain time. But if another cause be at the same time applied to the *body*, in consequence of which, if applied singly, it would have moved in the direction A C, with such a velocity as to describe A C in the same time that it would describe A B in consequence of the other cause; then, as Sir ISAAC NEWTON has proved, it will, nay it *must*, move in the direction A D, and describe the whole diagonal A D, in the same time that it would have described either A B or A C separately, if only one of the causes of motion had been applied.

But

But will the same result take place in the case of a similar combination of motives prompting to different actions?

If a porter is offered a guinea for every mile that he will carry a letter in the direction A B, and no other cause or motive, either physical or moral, occur, he will probably go on in that direction, till either the motive cease, by his desire of wealth being fully gratified, or else some new motive, or some physical cause occur, to stop, or retard, or alter his course; such as fatigue, or hunger, or thirst, or some river, or sea, or mountain, which he cannot pass.

If the same porter were at another time offered either a guinea or half a guinea for every mile that he should carry the letter in the direction A C, and no other cause or motive were applied, he would go in the direction A C, with just the same limitations and exceptions as in the former case.

And the evident facts, or general result,
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to be expected in both these cases, will be admitted as true by those who deny, as well as by those who assert, the philosophical doctrine of Necessity; and especially that of the constant conjunction of motive and action. For it has never been said, nor can it without the most glaring folly ever be said, that there is no relation between motives and actions, or that there is no analogy or resemblance between this relation and that of cause and effect in physics, or that motives are never conjoined with their proper actions: it is only the nature of the former relation, and the degree or extent of the resemblance between it and the latter, and the precise point of the *constancy* of the conjunction of motive and action, that are the subjects of dispute between philosophers and the vulgar. It might even appear probable, from a superficial view of such instances of the relation of motive and action, that ~~the conjunction~~ between them was constant, like that between cause and effect in physics. I mean, that this might appear probable to men who either had not the usual natural consciousness of self-governing power and independent ac-

tivity in themselves, or who, having such consciousness, should think fit to disregard it as a foolish vulgar prejudice. But let those two motives, prompting to different actions, be applied at once, and the error and the folly of such an opinion will soon appear.

Let our porter be offered a guinea a mile for carrying the letter in the direction A B; and at the same time let him be offered half a guinea a mile for carrying it in the direction A C; and let him be assured, that if he earn the guineas, he cannot earn the half-guineas, and that if he earn the half-guineas, he cannot earn the guineas.

Will he go in the direction A B, or in the direction A C, or in the direction A D, or in any other direction, or will he remain at rest at the point A?

I say, that if the doctrine of the *inertia* of mind, and the *constant conjunction* of motive and action, be true, he will go in the diagonal A D; and that it is folly for him to make a pretence of thinking, and
ridiculous

ridiculous to make any words about it; for go he *must* in that precise direction, as sure as ever a projectile moved in a curve; and pretty nearly for the same reasons. And this he *must* do, though he cannot earn, and knows that he cannot earn, one farthing by doing so: for the circumstance of earning, or not earning, any thing by his work, relates merely to the vulgar notion of motive, "that for the sake of which," and has nothing to do with the philosophical notion of motive, which either consists in, or at least comprehends, the specific principle of constant conjunction. Now, my purpose is to shew, that those two notions are inconsistent: for though this appears to me self-evident, and has been generally acknowledged by mankind, at least by the vulgar; yet as philosophers of such eminence as Mr HUME and Dr PRIESTLY have not seen it, nor thought of it, it must be owned, that it requires a rigorous proof. And further I say, that if the porter do not go in that direction, the doctrine in question must be false.

I do not say, that he will describe the whole diagonal A D in the same time that he would have described either A B or A C separately; for other motives or causes will occur to prevent his going with more than a certain velocity: For instance, the pain or fatigue of too violent exertions, or the physical impediments of want of sufficient strength or agility.

It must be observed, therefore, that my argument extends only to the direction, not to the velocity of the porter's motion, in such a case of the combination of motives that are constantly conjoined with their respective actions, and are applied to a person who is incapable either of resisting motives, or of acting without them.

It may reasonably be expected of every person who seriously believes the doctrine of Necessity, and the constant conjunction of motive and action, as asserted by Mr HUME, and who likewise understands and believes the composition of motion, as established by Sir ISAAC NEWTON, that he

he should admit at once my conclusion concerning the motion of the porter in the circumstances specified, without requiring any further argument in proof of it than what is comprehended in the algebraical canons already stated. Nevertheless, as there is reason to think that the doctrine of Necessity has been often maintained by men who knew nothing of NEWTON'S *Principia*; and as the conclusion in question is somewhat repugnant to common opinion, it may be necessary to state the proof of it more fully.

It is, in the first place, self-evident, that the porter, in the circumstances specified, must either remain at rest at the point A, or move from it.

If he remain at rest at the point A, it is plain there must be two motives completely separated from their proper actions; which is contrary to the principle of constant conjunction. The supposition of his remaining at rest may therefore be set aside at once, without further examination.

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The porter then must move from the point A; and if he move, he must move in some direction or another.

If he move in the direction A B, from his desire to earn a number of guineas, which we should think very natural and very prudent for him to do, a very powerful motive, to wit the desire of earning a number of half-guineas, prompting him to go in the direction A C, is completely separated from its proper action; which is contrary to the principle.

If he go in the direction A C, from his desire to earn the half-guineas, then a still more powerful motive, to wit, the desire of earning the guineas, is completely separated from its proper action; which is contrary to the principle,

If he go in any direction, such as A E or A F, intermediate between A B, or A C, and A D, either the motive prompting him to go in the direction A B, or *that* prompting him to go in the direction A C, must be in part separated from their proper actions;

actions; which is contrary to the principle.

If he go in any other direction, such as A G, or A H, or A I, there must be two motives separated from their proper actions, and an action without a motive, and in opposition to two motives; which is doubly or triply contrary to the principle.

The porter, then, according to the principle, has nothing for it but to go peaceably, and without murmuring, in the diagonal A D: for in this case both motives are conjoined with their actions, as far as is consistent with their mutual interference and modification: the result partakes of both, and is different from what either action would have been singly, as from the application of one of the motives by itself. And the difference between the result from the combination of the two motives, and that which would have taken place if only one of them had been applied, will be exactly equal to the full

full (supposed) effect of the other motive; to wit, $B D = A C$, or $C D = A B$.

All these conclusions respecting the necessity of moving in the diagonal $A D$, would be admitted at once, as being both demonstrably and experimentally true, with respect to a *body* which was free to move, and under the influence of corresponding forces, or physical causes of motion, applied in a similar manner. If it remained at rest at the point A , it would be admitted, that two causes were completely separated from their effects; if it moved in the direction $A B$ or $A C$, it would be admitted, that one cause was so; if it described $A E$ or $A F$, it would be admitted, that one cause was in part separated from its effect; and if the body described $A G$, $A I$, or $A H$, it would be admitted, that two causes were completely separated from their effects; and that there was an *event* (commonly considered as an *effect*) without a cause.

It is proper likewise to point out, that, according to the principle, the porter, in
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the case stated, *must* go chearfully and willingly, not with a heavy heart and by constraint, in the diagonal A D: for motives of the kind specified are not supposed to constrain a person, or to compel his *will*, but gently, though irresistibly, to influence and determine it. If in such a case the porter should be *willing* to go only in the direction A B, or only in the direction A C, one or other of the motives applied would be completely separated from its effect on his *will*; as obviously as both would be so, if he should be found *willing* to remain at rest at the point A.

On the same principles, too, it is demonstrable, that if our porter were assured of a good round sum, if he would go, in any straight line that he pleased, to a certain point, and were at the same time assured of a guinea a mile for going in any right line that he pleased, which did not lead, either directly to or directly from the point specified, he *must* describe some curve line, as being under the influence of a projectile or tangential force, and of a centripetal force at the same time. *Vis*

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centripeta

centripeta est quâ corpora versus punctum aliquod tanquam ad centrum, undique trahuntur, impelluntur, vel utcunque tendunt. Now, it might surely be said, with sufficient propriety in common language, that the porter, in the case stated, is attracted, or impelled; and NEWTON himself would have admitted, that at least he somehow tended towards the point or centre; while, at the same time, he somehow tended to go away from it, though not directly.

It would require much more mathematics than ever I was possessed of, to investigate precisely what sort of curve he would describe in any given case of a certain proportion of the tangential and centripetal motive; and I willingly leave that curious inquiry to those who like it, and who think themselves qualified to prosecute it with success. I shall only say, that every thing which they shall demonstrate mathematically from the principles assumed will be just as true as the principles themselves are; and yet will be most notoriously

riously and ridiculously false in point of fact.

Perhaps, therefore, it will be thought superfluous to propose any experiment on such a point, as no man in his senses can be supposed to doubt what the result of it will be; and as it may even be doubted whether the most confident assertors of Mr HUME's doctrine will risk a single guinea on such an experiment. Nevertheless I humbly conceive, that all those who have professed their belief of Mr HUME's doctrine, must be eager to put it to such a test as I have suggested; as being confident that the result of it will be favourable to their system: For all those who fully understood, and unfeignedly believed, the principles asserted by him, must also believe the necessary consequences of them, that are not impossible, till they have experience of their falsity, whenever such consequences are pointed out to them, even though they themselves had not thought of them. This is no new case in science; it happens every day to those who are learning geometry and me-

chanical philosophy. But we never hear of such persons refusing to admit the inferences, though new and perhaps surprising to them, which are shewn to be necessary consequences of principles formerly acknowledged. Now, for metaphysicians, who, after due consideration, have admitted Mr HUME's doctrine of Necessity, and been proud to assert it as their unalterable creed, to give it up without even putting it to the test of experiment, or waiting till it be demonstrated to be absurd and impossible; or for such men to distrust the result of its necessary consequences, even though undoubtedly possible, on the bare mention of them, and only because they are contrary to vulgar opinions and prejudices, and what is called *Common sense*, for which Mr HUME and his followers have always expressed the greatest contempt; is to acknowledge, that they had never in their hearts believed their own favourite system; that they knew more of human nature than they chose to avow; and, in particular, that they understood the relation of motive and action

action to be totally different from what they pretended to believe.

Now, all these suppositions are so injurious to the persons to whom they relate, that it may well be thought illiberal barely to state them, though only for the sake of argument; and to assert such things of any set of men, or even of any individual, would unquestionably be very unreasonable and uncivil, and perhaps not perfectly safe; for it is well known that some philosophers are very choleric. I conceive, therefore, that those philosophers who have professed their belief in Mr HUME's doctrine of Constant conjunction *must* put my inference from it to the test of experiment, before they can with any credit or consistency acknowledge it to be false, and give up the principle from which it is derived; unless, indeed, they can confute the reasoning by which that inference was deduced, and shew, that a motive is conjoined with its action, even when no action whatever proceeds from it, and when a person does precisely what he would have done

done if no such motive had been applied to him.

It may be worth while, however, to point out, as a further illustration both of the resemblance and of the difference between the relation of cause and effect and that of motive and action, that, in certain circumstances, a composition of motion, the action of a person, will take place from a combination of motives, very analogous to what takes place in a body from a combination of forces: so that a person so oddly constituted by nature as not to have the usual faculties of mankind, or so unhappily perverted by false science, as to disregard the suggestions of his faculties, might be tempted to believe, that the two relations were in every respect the same, and that in both the conjunction was constant.

Let us suppose a porter to be so far instructed in geography, as to understand the terms commonly employed in that science: Let him be assured of a certain sum for every *minute*, or every *second*, of
latitude

latitude that he shall go to the south of the point where he stands: Let him at the same time be assured of a proportional sum (according to the length of the degrees of *longitude*, at any given *latitude*) for every *minute*, or every *second*, of *longitude* that he shall go to the west of the same point: and let him be allowed to consider a little what would be best for him to do.

If he were a shrewd fellow, he would soon discover, that by steering his course south-west, he would be paid, both for his *southing* and his *westing*. And if he chanced to know any thing of a right angled triangle, he would perhaps find means to calculate, that by going south-west, that is, going in the diagonal of a supposed square, he would earn as much by going seventeen miles, as he could have earned by going twenty-four miles either west or south, or as he could have earned by going twelve miles south and twelve miles west. And I think it should be admitted as the probable or certain result of such a combination of motives, that

that every person of competent understanding and knowledge, placed in the circumstances stated, would go in the direction south-west. It is obvious, that if a person does so, both motives applied are conjoined with their proper actions; and that the action performed is a *tertium quid*, resulting from the combination of them both, and different from the simple effect of either of them applied singly, by the full effect of the other. And it is equally obvious, that if the person were to remain at rest, both motives would be separated from their proper actions; and that if he were to go only west, or only south, that one of the motives would be separated from its action. The keenest assertor of the doctrine of Necessity and constant conjunction, could scarce desire, or indeed contrive, an illustration more favourable to his system. And if no cases but such as this had ever been experienced or observed, it may be presumed, that all mankind would have been naturally of the same opinion with Mr HUME concerning the relation of motive and action. But whenever such a simple distinct circumstance

stance, as that of constant conjunction, is specified as subsisting between them, it may be tried experimentally in innumerable cases, and will soon be found not to take place.

It must be obvious to every person, that though in both these cases that I have stated, motion in the diagonal is equally the necessary consequence of the principles of *inertia* and of constant conjunction; yet in the former case, motion in that direction is not, while in the latter it is, in the well understood relation of an action to the motives of it. And it must be equally evident, that in the former case we should all of us expect, from our common notion of the relation of motive and action, and from our knowledge of mankind, and of their conduct in similar cases, that a person would not go in the diagonal of the parallelogram, but in the direction of one or other of its sides; and I have no doubt but it will be found, that he will do so. But this is to separate completely one motive from its action. Now, this is all that I aim at proving at present. The *inertia* of
H h mind.

mind, and the absolute and irresistible force of motives, and any other relation, possible or impossible, between motives and actions, excepting only that one of constant conjunction, may still be held; and any other doctrine of Necessity, except Mr HUME's, may still be maintained, consistently with what has yet been proved.

SECT.

S E C T. X.

Mathematical demonstration, that the doctrine of the Constant Conjunction of Motive and Action is absurd, as being inconsistent with itself.

MAny expedients will no doubt be contrived to evade the inferences which have been offered as necessary consequences of Mr HUME's doctrine; as the trial by experiment, if it is ever thought of at all, must, for very obvious reasons, be the last resource. I have not been able to think or hear of any such expedients which appear to me of any consequence; and have every reason to believe that there can be none. But there is one of them so commonly employed on all occasions, so strongly insisted on as sufficient to solve all difficulties with respect to the doctrine of Necessity, and so important in its consequences,

quences, which are very different from those commonly thought of, that I conceive it deserves peculiar attention.

Every person is ready to say, that all motives which do not exactly concur, and yet prompt to actions that cannot take place separately, must be considered as directly opposing one another.

This supposition is, in the first place, inconsistent with the universal analogy of physical causes; and, if admitted in physics, would imply an endless mass of the most notorious and ridiculous falsities and absurdities.

In the second place, It is inconsistent with many of the best known facts with respect to human actions: for in these we can often observe the blended result or influence of different, but not opposite, motives.

But supposing for once, that it were true, or rather considering the case of motives really opposing one another, let us
examine

examine the import and trace the consequences of the doctrine of the constant conjunction of motive and action; for in this case it appears to be inconsistent with itself, and therefore *absurd*, even in the strictest mathematical sense of this term; while, in the case of the combination of motives, it was only inconsistent with plain matter of fact, and with the vulgar notion of motive; and therefore (strictly speaking) only *false*.

If motives of equal strength directly oppose one another, it is held, that no action can take place, as they mutually counteract each other; but it is thought, that if motives of unequal strength directly oppose one another, the stronger will not only prevail, but have its full effect, as if it were not opposed at all.

Thus, a porter assured of a guinea a mile for going due east, and of as much for going due west, as fast as he could, if his face chanced to be due north or south, it is conceived, must remain at rest till some new motive occur to determine his choice,

choice, and direct his course. But it is conceived, that if he were assured of a guinea a mile for going east, and only of half a guinea a mile for going west, he would go east at the rate required of him, and earn the guineas, notwithstanding the constant conjunction of motive and action; just as he would have done if no such opposite motive as the offer of the half-guineas had been applied.

Now, if these very plausible propositions were expressed in mathematical form, they would run thus :

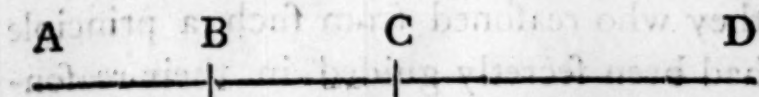
$$\begin{aligned} X &\equiv A = Y \equiv B, \\ X - Y &= 0 \equiv 0, \\ X - \frac{Y}{m} &= X \equiv A; \end{aligned}$$

which is absurd.

In common algebra, it is just $X = Y$, $X - Y = 0$, $X - \frac{Y}{m} = X$; which is absurd.

Or if it were thought worth while to employ a diagram to illustrate so plain a proposition,

proposition, in order to make the absurdity visible, it might be done thus :



Let A C and C D represent the equal force of the opposite motives, and let B C be a part of A C; it is asserted, that if A C be deducted from C D, the remainder will be nothing; but that if B C be deducted from C D, the remainder will be C D; which is absurd.

In plain English, it amounts to this, that when ten are deducted from ten, there can remain nothing; but that when four, or five, or six, are deducted from ten, there will remain ten; which is absurd.

There have been many instances of one error in an account or calculation, balancing, and thereby concealing another; but, so far as I know, this is the only instance in science, and a very curious one it is, of a notorious *falsity* in the principle assumed being in a great measure corrected and concealed

cealed by a palpable *absurdity* in the reasoning employed. And I doubt greatly whether this could have happened, unless they who reasoned from such a principle had been secretly guided in their reasonings, or at least in their conceptions and in their belief, by some other principle, which they did not chuse to acknowledge.

SECT.

S E C T. XI.

Illustrations of the absurdities and inconsistencies which are necessary consequences of the doctrine of the Constant Conjunction of Motive and Action.

AS the arguments offered in the preceding section, to shew the *absurdity* of the doctrine of the constant conjunction of motive and action, and its inconsistency with itself, though abundantly simple, are somewhat abstruse; and as there cannot fail to be, among men of sense and men of science, a very great distrust of all such general mathematical reasonings on the point at present in question; it will be proper to illustrate, by particular instances, the absurdities and inconsistencies which in the last section have been expressed only in abstract general terms.

With respect to the first point mentioned, namely, the unreasonableness of supposing all motives that do not perfectly concur to oppose one another directly, which is the first expedient commonly thought of to evade the argument from the composition of motion, it may be very easily illustrated.

We know that in physics the two cases of opposition and combination of causes are widely different, and have very different results. We should be apt to think a man insane, or at least not fit to be reasoned with, who should assert, that a current at right angles to the course of a ship had no other effect but to retard her progress, just as an adverse current would do, and did not in the least put her out of her course. Nor should we have a much more favourable opinion of the understanding of one who should assert, that the weight of a projectile, for instance a cannon-ball, shot obliquely to the horizon, had no other effect than merely to retard, and at last to stop, the motion of the projectile; or that the mixture of blue with
yellow

yellow had no other effect than the mixture of black or white with it would have had; or that the addition of sugar to lemon-juice neutralized the acid of it, as effectually as the addition of an alkali would have done. Such, however, is precisely the nature of the supposition with respect to motives, which is stated in the beginning of the last section.

Moreover, in many instances of motive and action, we can see plainly the blended result of combined motives; as in the story of *Appius Claudius* and *Virginia*, or indeed in any case, where, from fear or prudence, a person takes an indirect method to gain his chief and ultimate object; as when a thief steals, who dares not rob; or when a rogue cheats, who will not risk his neck by stealing; or when a general employs stratagem, rather than open force, as thinking the latter, though sure to be effectual, might cost him too dear. And let it be remembered, that it is not said that motive and action are never conjoined, but only that they are not constantly conjoined; nor that a blended result of com-

bined motives never takes place, but only that it does not always take place.

With respect to the second point stated in the last section, namely, the *absurdity* of supposing the stronger of two really opposite motives, not only to prevail, but to have its full effect as if unopposed, notwithstanding the constant conjunction of motive and action, and the acknowledged mutual counteraction of opposite motives of equal strength; it is, if possible, still clearer, and more easily illustrated.

How should we all be astonished, if a man of supposed good sense, and some knowledge, should start up and assert, that a mixture of equal parts of black and of white paint produced a grey paint; but that if the black or the white preponderated ever so little, the mixture would prove a perfectly black, or a perfectly white paint.

Or what should we think of a philosopher, who should gravely maintain, that an adverse current did not in the least retard

tard the motion of a ship, unless it was equal to the velocity which she derived from the wind; and that in this case the ship remained stationary; but that, whenever the current became so strong as to give the ship a greater velocity in one direction than the wind gave her in the opposite, then the ship went down the current, just as fast as if there had been no wind at all. Men who should maintain such opinions, if their conversation and conduct on other points corresponded to this specimen, would undoubtedly be pronounced fit for bedlam.

Yet a philosopher, who had adopted Mr HUME's doctrine of Necessity, and of the constant conjunction of motive and action, would not blush to say to his pupils, if they chanced to meet a sot reeling home from his club, " This fellow must have a
" most immoderate love of strong liquor
" and drunken company. You see here
" what a life he constantly leads; yet he
" has a strong sense of religion, a just notion
" of virtue and moral conduct, a desire
" to preserve a good character, nay a de-
" sire

“ fire of fame, like other men ; he wishes
“ to enjoy good health, to prosper in his
“ business, and to make a fortune ; he has
“ a wife and children, whom he loves,
“ and whom he wishes to provide for ; he
“ is not ignorant of his duty to his friends,
“ to his country, and to all mankind :
“ Yet, in defiance of all these motives, he
“ abandons himself to drinking. Now,
“ this can proceed only from the extraor-
“ dinary violence of the motive that
“ prompts him to it. For there can be
“ no action without a sufficient motive,
“ nor any motive without its proper ac-
“ tion : The conjunction of motive and
“ action, like that of cause and effect in
“ physics, is constant.” And this idle
talk would be thought sense, nay, very
ingenious reasoning, and profound philo-
sophy.

Let us suppose, now, the drunk man to
have heard what the philosopher said, and
being sufficiently able to speak, though not
very able to stand, to set about answering
him, to the following purpose : “ I know
“ nothing about your metaphysics, and
“ your

“ your motives and actions; but I know
“ very well how to make punch; and that,
“ I can tell you, is no small piece of know-
“ ledge; for every thing depends on the
“ nice proportion of the ingredients. If
“ there be but one drop too much rum
“ in it, it will be as strong as rum, and
“ without any taste either of sugar or le-
“ mon-juice; and if there be but one
“ drop too much water in it, it will be
“ much worse, for it will be mere water,
“ without either strength or taste; and if
“ there be one grain too much sugar, or
“ one drop too much lemon-juice, it will be
“ as sweet as sugar, or as sour as lemon-
“ juice; which would never do. And I
“ am philosopher enough to know, as
“ well as you do, that this is the conse-
“ quence of the constant conjunction of
“ cause and effect.”

My drunk man would be thought to
speak nonsense; and, to say the truth, not
altogether without reason. Yet his non-
sense would be wonderfully like the phi-
losopher's sense; and I believe it would
have puzzled SOCRATES himself to say
which

which of them was the more absurd; as both of them contain as direct and palpable a contradiction as it is possible to express in language.

We should doubtless think it no easy matter to add to the inconsistency just now stated; yet even this has been done, and, what is more, *must* be done, by every person who asserts Mr HUME's doctrine of Necessity, and yet admits that justice may be tempered with mercy; for instance, that a thief, justly condemned to be hanged, may be pardoned on condition of banishment; that passion may be moderated and restrained within certain bounds, by prudence; that one passion may be checked in its indulgence, though not quite eradicated or overcome by another; for instance, anger by fear; or that a debauchee, who distrusts, or perhaps does not relish, the maxim of a short life and a merry one, may wisely determine to be a little less wicked than he would like to be, that he may be the longer wicked. For in all such cases, the weaker motive trenches upon the stronger, and of course the action or supposed

supposed effect proceeding from the latter is less than it would have been if unopposed; while in innumerable other cases the reverse takes place. Indeed the slightest attention to human conduct shews so clearly that the relation of motive and action is not a constant, but an occasional and separable conjunction; and that motives and actions are separated much oftener than they are conjoined; that it is surprising the author of the History of England should even for an hour have continued in the opinion at present in question.

Had I the pen of ARBUTHNOT or SWIFT, I should write a little history of the life and opinions of a true Necellarian, whose thoughts and actions accorded with his profession, and were inseparably connected with the causes or motives that were applied to him. For such a history would be the best refutation of the principle that has been asserted.

However unequal to such a task, I shall venture to give a short specimen of what

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manner of man a practical Necessarian *must* be.

His religious sentiments I pass over in silence; for the religion of a Necessarian is to me utterly incomprehensible.

For the same reason, too, I say nothing of his speculative principles of morality: Not that I would by any means insinuate, that he would have no religion and no virtue, but only that his religion and virtue would be so ridiculously inconsistent with those of other men, that it would be folly for other men to attempt to judge of them: For he would assume as undeniable axioms in religion and morals, what other men would consider as palpable absurdities: For instance, that a man might justly be hanged in this world, and damned in the next, for doing what he could not help doing.

His practical morality, or general character and conduct, it would be easy to give an account of, and even to demonstrate mathematically, if required. But
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it would be very little to his credit; for every vicious tendency he might have would trench most grievously on his virtues, if he had any; and every temptation to evil would make him worse than he was before. He would not, and indeed he *could* not, emulate the *justum et tenacem propositi virum* of HORACE; nor could he ever prove the

*Felix ille animi quem non de tramite recto,
Impia sacrilega flexit contagio turba.*

He never *could* be perfectly virtuous in thought and deed, but when he had no temptation, or no opportunity, to be vicious. He would be brave, or, more strictly speaking, he would not be afraid, only where he knew not of any danger; he would be patient only when he had nothing to suffer; he would be just only when he could get nothing by dishonesty; he would be temperate and chaste only where he had no opportunity to gratify his appetites, or had no appetites to gratify.

In science he would be a prodigious sceptic, and of course would fancy himself a mighty philosopher; and perhaps find means to persuade other people to think so too; as has often happened already.

In politics he would be a *Trimmer*, and one of a very peculiar kind. If he got a seat in the House of Commons, he would be sadly perplexed, and perhaps find it impossible, to chuse a side, if he had no other principles but pure public spirit to direct him. A puzzling debate about the good of the nation would be as fatal to him as it was to *Sir Francis Wronghead*. But having much desire of popularity, and some little wish for wealth and power, and no prospect of any good thing from the minister, he would of course join the opposition, whoever was in or out, and would speak loud and long, and vote uniformly with them. But whenever the minister discovered his blind side, (which could not long remain a secret), he would immediately put an end to his speeches, and his opposition, without the smallest expence
to

to government, or retarding, even for an hour, the payment of the national debt. The mere offer of a good place or pension, on condition that he should speak and vote with the ministry, though it could not bring him over to them, would effectually undo him as a patriot. It would, in the first place, mar his opposition-speech completely.——This indeed is no new case; something of the same kind once happened to DEMOSTHENES, after receiving a handsome present from PHILIP. He spoke against PHILIP, it is true; but he had lost his voice, and the Athenian people could not hear him. His witty countrymen soon discovered, that he had got the *Ἀργυραῖη*, or silver-fore throat; a disease not described by HIPPOCRATES or GALEN, but said to be endemic, and well understood in all popular assemblies; and all the world knows that it is quite impossible either to prevent or to cure it.——But to return to our Necessarian in the House of Commons. Being under the influence at once of his patriot-principles, and of the great offer made him by the minister, it is plain, that he would either not speak
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at all, or not speak so as to be heard or understood, or not speak to the purpose on either side. If the question was put, he neither would, nor indeed *could* he, say either *Aye* or *No*; for that would be to separate a motive from its action; and therefore he would of necessity either be silent, or utter some sound different from either *Aye* or *No*: For example, a combination of the two, if such a thing were possible, or very probably some exclamation expressive of embarrassment and distress. But if the House divided, his case would be at once ridiculous and deplorable. He might be expected, first of all, to endeavour to place himself in the door-case; inclining, perhaps, more to the House, or more to the lobby, according to circumstances. But this not being allowed, he would try to sneak off, or to conceal himself in some corner or some garret; nay, he might jump out at the window, or lay violent hands on himself; in short, he might do any thing that he pleased, or that he could think of, except staying in the house, or going into the lobby; for he would know that that would be to vote either with the

Ayes

Ayes or with the *Noes*, as the tellers would find him on one side or the other, in spite of all his remonstrances. Now, for him to vote on either side, would be to separate completely the opposite motive from its proper action.

In the common affairs of life, he would be wavering and irresolute, seldom forming, and never executing, any steady or uniform purpose; and fond of feeble councils, and of imperfect and inadequate measures, on all occasions.

He would be very often in love; but would never marry; for however much he might love his gentle mistress, yet, like *Tom Thumb*, at the thoughts of marriage he would grow pale.

He would often set out on a journey, and seldom arrive at the end of one. And he would often be found hopping through the world with one boot on and the other off, like *Prince Prettyman*, in the *Rehearsal*, who, by the by, is the only practical *Necessarian* that ever I saw.

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If he escaped the lash of the law for some of his pranks, which I can by no means answer for, he would soon be examined by virtue of a commission of lunacy; and would instantly be pronounced *non compos mentis*; a phrase never more properly applied than to such a Being, who, though not mad in other respects, had lost or renounced the power of governing himself.

Abfurd and foolish as these assertions must appear, I beg it may be observed, that they are all necessary inferences from the doctrine of the *inertia* of mind, and of the constant conjunction of motive and action; and if this doctrine be true, they must all be truths, and such truths as no power in heaven or earth can alter. They stand on the same footing with the necessary truths in geometry and in mechanical philosophy.

Geometers do not pretend to prove the existence of cones, spheres, and cylinders; but they have demonstrated, that if it should please God to create a cone, a sphere,

sphere, and a cylinder, of the same height and the same diameter, they *must* be to one another in the proportions 1, 2, 3.

Sir ISAAC NEWTON never set about proving the existence of matter, and the reality of motion; and I dare say was much too wise a man ever to have attempted to reason with men who required any proof of these things. But, taking them, and the simple laws of motion as ascertained by experiment and induction, for granted, he has demonstrated what the result *must* be in innumerable cases.

I by no means assert, or undertake to prove, the existence of mankind, the *inertia* of mind, and the constant conjunction of motive and action; and I think too highly of divine wisdom and goodness, to believe, or even to suppose, that God should ever make such a foolish, helpless, wretched Being, as the Necessarian man; the notion of which appears to me altogether unworthy of the human understanding, considering the means of better information which we possess; but I assert with

confidence, that if some malevolent Dæmon should contrive to make such a Being, or if some philosopher, crazed with false science, should resolve to act conformably to the principles in question, and persevere in doing so, his conduct *must* be what I have specified; for the contrary supposition involves a direct contradiction.

Or if the same principles be extended (as hath sometimes been done) to the motives and actions of the Supreme Being, to whom we ascribe justice and mercy as motives of his actions, then, whenever justice prompted to punish, and mercy to spare, God himself could neither be just nor merciful. And let it be observed, that the folly and impiety of such an inference lies entirely in the principles assumed, and by no means in the reasoning employed, which is as innocent and simple, and just, and the conclusion, therefore, (if the principles be true), as unquestionable, as that if three be deducted from five, there can remain but two.

SECT.

S E C T. XII.

Observations on the case of the increase or concurrence of Physical Causes and of Motives respectively.—The result with respect to Physical Causes consistent with the principle of Constant Conjunction.—The result with respect to Motives only sometimes consistent with that principle, and often repugnant to it, but always consistent with the vulgar notion of Motive.—Observations on the parallel case of the increase or concurrence of the external, partial, exciting Causes in Physiology.

IN the preceding sections, I have considered the two cases of the combination and the direct opposition of motives and of physical causes, respectively; and have illustrated very fully the various inferences drawn as necessary consequences from the principle of constant conjunction of cause

and effect, motive and action. Those inferences appear to be very generally, if not universally, true with respect to causes and effects; but in many cases false, and in others absurd, with respect to motives and actions. Though this be amply sufficient to prove, that the relation of motive and action is not a constant, but an occasional and separable conjunction; yet with a view to show more clearly the difference between the two relations, and to assist in the investigation of the nature of the relation of cause and effect in physics, it may be useful to consider the third case of the application of causes and motives, respectively, namely, the increase, addition, or exact concurrence of them. This case is just as instructive as the others; and in it the difference between the result according to the vulgar notion of motive, "that for the sake of which," and the result according to the notion of physical cause, including the circumstance of constant conjunction with its effect, is as real, and as great, as in the other two cases, though perhaps it is not quite so obvious; in consequence of which, on a
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superficial view, the analogy between the two relations in question appears more perfect in this than in the other two cases; but this error is soon corrected, when we attend strictly *ad instantias particulares, earumque series et ordines*.

As fair and obvious instances of the increase, addition, or exact concurrence, of physical causes, either of the same or of different kinds, but all having the same kind of effect, we may take the following:—Heat applied in various degrees, from the slightest that we can perceive or measure, to the greatest that we can produce, or have any opportunity of observing; corresponding to which degrees of increase or addition, and constantly conjoined with them in the same kind of substance, provided no other cause interfere, we observe expansion of the solid substance in various degrees, then fusion of it, then expansion of the fluid substance in various degrees, then evaporation of it, then more and more expansion of the vapour:—Or with respect to motion, a ship in still water, and with a gentle breeze, advancing with

with a certain velocity, when she has but one small sail spread to the wind; and quicker and quicker, as she sets more and more sail; and still quicker when the wind becomes greater; and still quicker when the turn of the tide produces a favourable current:—Or a cannon-ball being projected with a certain velocity from the mouth of a gun loaded with one ounce of gunpowder, but with a much greater velocity when the charge is a pound, and with a still greater when the charge is twelve pounds of powder:—Or with respect to gravitation, when a body near the surface of the earth falls towards it with a certain incipient velocity; but with a greater velocity towards a greater mass of matter, as, for example, Jupiter, or the sun, if placed at the same distance from the surface of either of them:—Or when a body at the surface of the earth falls fifteen or sixteen feet in the first second, which, at the mean distance of the moon, falls but the three thousand six hundredth part of sixteen feet in the first second, so as to fall only sixteen feet in the first minute, by the constant accumulation of its own motion.

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This last instance I mention as serving to keep in mind, that in cases of physical cause and effect, the principle of change is, strictly speaking, not the thing usually termed the *Cause*, but a certain relation between it and the subject in which the change occurs. Now, a relation between two things may depend, not merely on the things themselves, nor on their respective qualities, but either wholly or partly on some other relation between the things. Thus, we know that gravitation, or the tendency of every particle of matter to every other, varies according to the distance of the bodies, or masses of matter; and decreases as the square of the distance increases. But the distance between two bodies is plainly no quality of either of them, but a relation between them.

Corresponding to these cases of physical cause and effect, and on a superficial view so perfectly analogous to them, as scarce to exhibit any difference, are the following common cases of motive and action. —A porter will for a shilling (that is to say, his desire of earning the shilling being

ing his motive) carry a letter a mile. For a guinea he will carry it one and twenty miles, which he would not do for one shilling, nor even for two. For an hundred pounds, he will engage to do as much of that kind of work as he can in a twelvemonth.—A labourer will work a whole day, but not a week, for a shilling. He will work a whole week for seven shillings; and perhaps a whole year for twenty pounds.—A weaver will make a certain quantity of cloth for a certain sum, and more and more, very exactly, in proportion to any larger sums that may be offered him.—These are all instances of motive and action bearing such a close and striking relation to *proper* quantity, that there can be no cavil about them. There would be many more actions from motives of various kinds, equally analogous to the cases of physical cause and effect, were it not that opposing motives often occur, which check many actions that otherwise would be in proportion to their respective motives. Thus, we are often restrained from doing many excessive or extravagant actions, from extraordinary motives

tives of benevolence, of selfishness, of malice, or passion of any kind, by considerations of justice, of prudence, or of humanity.

It is necessary, therefore, in point of candour, when we would point out the difference between the result of the increase or concurrence of motives and that of physical causes, with respect to the principle of constant conjunction, to consider only such actions as are either not at all restrained in their degree by the influence of opposite motives, or not more restrained in the instances wherein they do not occur, than in those in which they do occur, in a degree accurately proportionate to their respective motives.

Such cases we may easily make for ourselves, in any porter, labourer, or weaver. For example, let a porter be offered, instead of a shilling, a guinea, or an hundred guineas, for carrying a letter an hundred yards. I conceive that he will do the work, and pocket the money, with great satisfaction; but without insisting

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on going twenty miles, or on working a whole year, for his generous employer, and thereby shewing the constant conjunction of motive and action.

It would be needless, and indeed unpardonable, to have recourse to diagrams, or to algebraical *formulae*, or even to arithmetical calculation, in order to shew the difference between the result of the increase or concurrence of physical causes, and that of a similar increase or concurrence of motives; and the inconsistency of the result in many examples of the latter kind with the principle of constant conjunction; and the repugnancy of it to the notion of quantity, which amounts to absurdity, even in the strictest sense of this term. The illustrations of the ship, and of the cannon-ball, must be sufficient for my present purpose. To suppose a ship to advance sometimes no faster on increasing her sail, or on the wind increasing, or on her getting into a favourable current, than she did in still water, with a small sail, and with a gentle breeze; and to suppose a cannon-ball some-
times

times to move no faster from the mouth of a cannon with the force of one or of twelve pounds of gun-powder, than it would have done with the force of one ounce of the same kind of powder, would be a most extravagant and foolish error; nor do I believe there is in the whole British fleet a single cabin-boy or powder-monkey who would fall into such a mistake. If any person, from uncommon deficiency of understanding or attention, should fall into so strange an error, it would be easy to set him right; but if a person should assert, that such a result, and such occasional varieties in the result, in those cases, might take place, notwithstanding the constant conjunction of cause and effect, he would be maintaining an absurdity, and, though not a direct contradiction in terms, at least a proposition immediately resolveable into such a contradiction; and if he spoke *bona fide*, he would be insane, and consequently unfit to be reasoned with.

Such precisely would be the situation of one, who should assert the corresponding

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proposition, with respect to the cases of motive and action.

It must, I think, be obvious to every person of competent understanding, and knowledge of human nature, that the different result from the increase or concurrence of motives prompting to the same kind of action, on different occasions, is to be expected and foreseen; that on some occasions the motive is to have its full effect, or to be completely conjoined with its proper action, and on others not; and that, in both these cases, the action performed, whether proportioned to the motive that prompts to it, according to the principle of constant conjunction, or quite disproportioned to it, and in repugnance to that principle, equally stands in the familiar and well-understood relation of a voluntary action to its motive, or “that
“ for the sake of which.”

Hence we may infer with certainty, that those who expect and foresee that variety in the result, on different occasions, with respect to motives and actions, but
not

not with respect to physical causes and effects, *could* not have believed the two relations to be the same, nor even the principle of constant conjunction to make a part of the former relation, as it does of the latter; and that all of them *must* have had, not only the conception, but the belief, of the relation of "that for the sake of" which, and no other, as subsisting between motives and actions,

Though not immediately connected with the purpose of this Essay, yet as highly subservient to the more remote and general object of my investigation, the nature of the relation of cause and effect in physics, and of the various principles of change to which the phenomena that we observe ought to be referred, I think it may be worth while here to point out both the resemblance and the difference between the result from the increase or
concur-

concurrence, as well of physical causes as of motives, respectively, and the result in the corresponding cases in the physiology both of animals and vegetables.

In the physiology of these, as well as in the voluntary actions of intelligent Beings, we observe a mixture or union of causes or principles of change. There are certain external circumstances, to which the changes in vegetables, and many of those in animals, bear such an evident relation, and one so *like* to that of cause and effect in lifeless bodies, that the former have always been regarded as the causes of the latter. It appears, however, on giving due attention to the changes observed, and to all the circumstances connected with them, that the relation between the changes and the external circumstances is not the *same* with that of cause and effect in lifeless bodies; that the external circumstances are not the sole causes or principles of the changes observed, but only partial and accessory causes of them, though perhaps indispensably requisite

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quisite for them; and that there is in the subject another principle of change, the concurrence of which is no less requisite for the production of those changes than the application of the external causes. To this we give the name of the *Vital Principle*, or *Principle of Life*; meaning thereby only to express a fact, and give a name to something which we have frequent occasion to speak about, but without intending to express any opinion, or to insinuate any hypothesis, concerning the nature of it; which is hitherto unknown, but well deserves to be investigated.

Common language affords no appropriated word or phrase, corresponding to *motive* or *final cause*, which we use in speaking of voluntary actions, to denote the partial external causes, whose concurrence with the internal vital principle is requisite for the production of physiological changes. Medical language, however, affords a phrase, hitherto employed chiefly or solely in speaking of the corresponding partial and accessory causes of diseases, namely, *occasional* or *exciting cause*, the
meaning

meaning of which, I think, may, without much impropriety, be extended from pathology to physiology; as the generic nature of the notion to be expressed by it in both subjects must be obvious; and the specific meaning of it, in different cases, must be sufficiently explained by the instances to which it may at different times be applied. And such an easy and natural extension of the meaning of a well-understood phrase is more agreeable, and less embarrassing, than the introduction of a perfectly new word or phrase; especially when employed to denote what was before in some measure known, though perhaps not much attended to, and expressed by a familiar, but ambiguous phrase.

For, however imperfect their language has been on this point, the actions of mankind, on many of the commonest as well as most important occasions, as in agriculture, in medicine, in the breeding of animals, shew plainly, that they not only perceived a difference, but had even some notion of the nature of the difference, between

tween the partial exciting causes of physiological changes and the full physical causes of the changes observed in lifeless bodies. That some of them, in their reasonings on physiology and pathology, have overlooked that difference, and of course have fallen into error, and sometimes into nonsense, in their speculations, cannot be denied. Physicians, in particular, have often done so. But this proceeded from their reasoning hastily and carelessly, by means of ambiguous words, without due attention to the differences of the things about which they reasoned, or even to the differences of their own natural notions, occasionally expressed by the same phrase.

All this may be easily illustrated by many familiar and unequivocal examples. Thus, though the principle of life be present in full perfection, as in a fresh egg, or a ripe acorn, unless the proper external circumstances, or exciting causes, concur, no change will proceed from it. For example, if a certain degree of heat be not applied, the egg and the acorn will re-

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main in the same state (at least without any life or growth) for many years.

If the principle of life be a wanting, for example, if the egg be addle, and the acorn unripe or rotten, whatever heat be applied, and however favourable the other exciting causes, such as moisture, and earth, and light, and air, may be, no chicken and no tree will ever be produced.

But when both the vital principle is present and perfect, and the exciting causes concur, then the physiological changes or effects take place, as certainly, and with as little appearance of any kind of optional or self governing power in the subject, as the simple effects in lifeless bodies from the application of physical causes. But even in these circumstances, the physiological changes, though they may be increased and accelerated to a certain degree by an increase of the exciting causes, and diminished by a diminution of these; yet are by no means accurately proportioned to them, according to the principle

ciple of constant conjunction, or as pure physical effects are to their causes.

Thus, a fresh hen's egg, in ordinary circumstances of air, rest, &c. if heat be uniformly applied to it, to the degree of about 100 of Fahrenheit's scale, will be hatched in about three weeks. If a lower degree of heat be applied to it, or if the application even of that proper degree be often and long interrupted, the egg will be longer of being hatched; as happens to the eggs first laid of any brood, which are hatched much about the same time with those last laid, though these were perhaps a fortnight later of being laid than the first. Possibly a certain very moderate increase of heat, beyond even what is commonly applied, may accelerate a little the hatching of the egg; but if a much greater degree of heat, for example, 200° or 300° , were applied to the egg, all other circumstances being the same, instead of being hatched in three days, it would be roasted in three minutes.

If a fresh and ripe acorn were planted

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in Windfor forest, with the degree of heat, of moisture, of air, &c. which it would meet with there, it would soon vegetate, and in two hundred years would grow to be a sturdy oak. The same acorn, in the poorer soil, and chilling climate of Scotland, would grow more slowly and imperfectly; and in the dreary regions of Iceland or Greenland, it would not grow at all. In France or Italy, with the aid of their more genial climate, it would grow more quickly even than in England. In the torrid zone, at least in a situation where the heat is very great, as near the level of the sea, it would either not grow at all, or it would be feeble and sickly; it would never arrive at maturity, nor continue its species; and even the individual plant would soon perish. If a very great degree of heat and moisture were applied, as in a stove or oven, to try how much its growth might be hastened or increased, it would not vegetate in the least, and might be thoroughly boiled or stewed in an hour.

In the animal body, great changes may be produced by exciting causes in concurrence

rence with the vital principle. I shall say nothing of diseases, as I do not intend this Essay as a medical treatise; but shall consider some of the salutary changes which, by such a combination of causes, may be produced in our bodies.

It is generally believed, and I hope it is in some measure true, that by the use of certain drugs strength may be given, or at least restored, to the human body; for example, by Peruvian bark, and by the calx of iron. A person may grow stronger, by taking a drachm of the former, and ten grains of the latter, every day; and perhaps still stronger, by taking two, or four, or ten times that quantity, of each of those medicines, daily. But if he should take it into his head to swallow a pound of each of those drugs every day, in hopes of obtaining a proportional increase of their beneficial effect, he would add as little to his strength as to his stature; and probably would injure his health, and impair his strength very greatly.

Whatever may be thought of the efficacy

cy of such drugs, it is certain at least, that, by a certain quantity of food and of exercise, other circumstances being such as we commonly find them, a man will just be kept alive, and will be very weak; by more food, and more exercise, he will grow gradually stronger; by the natural quantity of both, he will have the natural degree of strength. By a kind of over-feeding or cramming, the *Ἀνακοφάγισ* of the ancient Athlets, corresponding to the high feeding of horses for many purposes, with proportional exercise, he will acquire preternatural and athletic strength, perhaps dangerous in its tendency, and inconsistent with health. But if he carries either the feeding, or the exercise, or both, beyond a certain degree, instead of growing stronger, he will become every day weaker; he will soon be worn out, or may even faint, or die, from his violent exertions.—The same may be said with respect to the beneficial, exhilarating, strengthening, vivifying effects of wine, or sometimes even of brandy, when taken in moderate quantity; and the pernicious, enfeebling, stupifying, and sometimes fatal

tal effects of them, when taken in too great quantity.

In like manner, when the physiological effect of an occasional or exciting cause tends to impair or to destroy life, to a certain degree there may be a proportion between them, like to that of physical cause and effect in lifeless bodies; as in many morbid causes, and the diseases proceeding from them. But the total extinction of life admits not of degrees; nor can it, therefore, be proportioned to the increase or concurrence of external occasional causes, as pure physical effects in lifeless bodies, or even in living bodies, may be to their full physical causes.

A man may be as effectually killed by one musket-ball, or even by one blow on the head or on the stomach, though perhaps no visible injury is done to his frame by such a blow, as he could be by a thousand musket-balls piercing every part of his body, or as he could be if he were blown from the mouth of a cannon. In these last cases, the physiological effects
are

are not proportioned to their occasional causes; nor can they be so; but the simple mechanical effects of the same things, to wit, the number and velocity of the balls, and the quantity of the powder in the cannon, are proportioned to them as their full physical causes.

In like manner, though a very moderate degree of heat will as completely extinguish life as the heat of a great furnace could do, so that no greater effect on life can proceed from the heat of the furnace than from the more moderate heat; yet the pure chemical effects of the greater heat, expansion, inflammation, evaporation, calcination, fusion, vitrification, &c. are produced, and are proportioned to the heat as their full physical cause.

Even where the principle of life has no share in the production of the phenomena, but where these depend partly on the internal constitution of a lifeless body, or the relation of its constituent parts to one another, partly on the concurrence of an external occasional cause, the changes that
take

take place in the subject, though in some measure proportioned to the occasional cause, are by no means completely so; nor is that cause constantly conjoined with that kind of effect.

Thus, the fermentation of must, or of wort, and the putrefaction of flesh, depend on such a combination of principles of change. Besides the constitution of the subject with respect to mixture, and moisture, &c. the concurrence of heat is requisite to fermentation of every kind. In the temperature of 20° , it will not go on at all; in that of 40° , it will go on, but very slowly; in a temperature from 50° to 60° , it will go on moderately, and properly for the useful purposes of making wine or ale; in a temperature from 80° to 100° , it will go on violently, and much too fast for those useful purposes. But in a heat of 200° , or in the greater heat of *Papin's* digester, or of a furnace, it will not go on faster, and probably not at all; but the simple effects of heat, that is, the changes resulting from the relation between heat and the substances to which it is applied,

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will

will take place, and will correspond to the degree of heat.

Now, let us compare together these various results, in the corresponding cases of the concurrence, or increase, of full physical causes applied to lifeless bodies; of partial concurrent causes applied to such bodies; of external, occasional, exciting causes, applied to living bodies; and of motives applied to living intelligent persons.

The full physical causes are constantly conjoined with their respective effects; which accordingly correspond to them, not only in kind, but in degree or quantity.

The partial, exciting, concurrent causes, whether applied to lifeless bodies, or to living animals and vegetables, are not constantly conjoined with those changes that are referred to them; nor, consequently, do those changes always correspond to them in degree or quantity, nor even in kind.

Motives

Motives are not constantly conjoined with their respective actions; nor, consequently, do these correspond to them in degree or quantity, even where they do so in kind.

But the actions always correspond to the vulgar notion of motive, "that for the sake of which." The porter, the labourer, the weaver, in the examples given, do just what is requisite to obtain their object, *Το ὅ ἐνεκα καὶ τοῦ ἀγαθοῦ*, and no more. They seem to give, or allow, as much influence or effect to the motives applied, in any case, as may secure that object, and to prevent their further well-known effects, which in other cases they would allow to take place.

Now, this implies something more than intelligence in the person; for intelligence in the subject to whom the motive is proposed is implied in the very notion of motive. That fact of the action always corresponding to the motive in point of intelligence, and attainment of the object proposed, but yet not always being pro-

portioned to it, or corresponding to it in point of quantity, is equally inconsistent with the principle of constant conjunction, and with the supposition of mere chance, or the want of any power in the Being who acts, to allow or to prevent the full effect of the motive. It implies the possession and exercise of such a power.

A mass of ice exposed to heat, a ship under sail, a cannon-ball when shot from a cannon, wort in *Papin's* digester, an egg placed in a common oven, an acorn planted in very moist earth in the torrid zone, a man who has just drank a quantity of brandy, a fellow who is offered a sum of money, on condition that he drink a certain quantity of brandy, and who is willing to earn the money on that condition, though otherwise not disposed to drink brandy, which, though a shameful, is a real case, and not a very uncommon one; are all subjects susceptible of change, and all have certain causes, or principles of change, applied to them.

The six first of them are equally destitute

tute of intelligence and of self-governing power.

The three first of them, being exposed to the full physical causes of certain changes, undergo those changes; which are proportioned in degree to the increase or concurrence of their respective causes.

The fourth, fifth, and sixth of them, are under the influence of certain principles of change, which are the full physical causes of certain changes, and only the partial, concurrent, exciting causes of others: the former set of changes takes place constantly, and always in proportion to their causes; the latter set of changes either does not take place at all, or at least the changes are not proportioned to the partial exciting causes applied; nor is the peculiar moderate effect of a small degree of these obtained, when a greater degree of them is applied; the more violent and purer physical effects of which take place uniformly.

In the two last subjects, to which we suppose

suppose principles of change to be applied, there is equally intelligence; but in the last of them only there is any self-governing power, with respect to the change, or any power of separating, even in part, the principle of change from the change corresponding to it, so as to obtain or permit the moderate effect or influence of it, without the greater effect, proportioned to the degree of it, and which sometimes would take place.

The man who drinks brandy, notwithstanding his intelligence, and his desire to obtain only the good effects of it, will experience physiological changes or effects corresponding to that exciting cause, and in a great measure proportioned to the degree of it; and accordingly these effects, from one degree of it, will be uniformly slight, and from a greater degree of it, will be uniformly violent.

But the action of the fellow who drinks brandy *merely* in consideration of a motive proposed to him, which action is considered as the effect of that motive, and indeed

deed corresponds to it perfectly in one way, is by no means proportioned to the degree of the motive proposed, but only to what it is requisite to accomplish. And if this can be accomplished by drinking one glass of brandy, the fellow (whom we suppose not to be such a fool as wilfully to endanger his health or life without knowing why) will drink no more of it; tho', if he could not otherwise have accomplished his purpose, he would perhaps have endangered his health or life by drinking a much larger quantity; that is, by doing an action in a great measure, or as far as he was able, proportioned to the degree of the motive applied.

S E C T.

S E C T. XIII.

Observations on some circumstances that have contributed to conceal from the view of men of science the absurdities and inconsistencies which are necessarily implied in the doctrine of the constant conjunction of Motive and Action.

IT is incredible, that falsities and absurdities, so gross and palpable as those which are demonstrably implied in the doctrine of Necessity, as modified and asserted by Mr HUME, should even for an hour have escaped the notice of men of sense and men of science, if there were not some circumstance to conceal them from their view, or to withdraw their attention from them. A single leaf, it has often been observed, may conceal an object, as effectually as a mountain could do.

Such,

Such, I believe, has been the case in the present instance.

Philosophers have always been more intent on observing the points of analogy and resemblance, (which are very numerous and very obvious), than on observing the points of difference between the relation of motive and action and that of cause and effect in physics: Which is the very reverse of what they should have done.

This disposition in men of science, and indeed in all mankind, and the dangerous tendency of it, and the necessity of guarding against it, are well pointed out by BACON, in the following aphorisms of the *Novum Organum*.

Intellectus humanus ex proprietate sua facile supponit majorem ordinem et æqualitatem in rebus quam invenit : et cum multa sint in natura, monodica, et plena imparitatis, tamen affingit parallela, et correspondentia, et relativa, quæ non sunt. I. 45.

Intellectus humanus in iis quæ semel placuerunt, (aut quia recepta sunt et credita, aut quia
P P *delectant),*

delectant), alia etiam omnia trahit ad suffragationem, et consensum cum illis : et licet major sit instantiarum vis et copia, quæ occurrunt in contrarium ; tamen eas aut non observat, aut contemnit, aut distinguendo summovet et rejicit, non sine magno et pernicioso prejudicio, quo prioribus illis syllepsibus autoritas maneat inviolata.—At longe subtilius serpit hoc malum in philosophiis et scientiis ; in quibus quod semel placuit, reliqua, licet multo firmiora et potiora, inscit et in ordinem redigit. Quinetiam licet abfuerit ea, quam diximus, delectatio et vanitas, is tamen humano intellectui error est proprius et perpetuus, ut magis moveatur et excitetur affirmativis quam negativis ; cum rite et ordine æquum se utrique præbere debeat ; quin contra, in omni axiomatico vero constitutendo, major est vis instantiæ negativæ. 1. 46.

Maximum et velut radicale discrimen ingeniorum quoad philosophiam et scientias illud est ; quod alia ingenia sint fortiora et aptiora ad notandas rerum differentias ; alia ad notandas rerum similitudines. Ingenia enim constantia et acuta, figere contemplationes, et morari, et hærrere in omni subtilitate differentiarum possunt : Ingenia autem sublimia, et discursiva, etiam tenuissimas et catholicas rerum similitudines et
agnoscunt

agnoscunt et componunt. Utrumque autem ingenium facile labitur in excessum, prensando aut gradus rerum aut umbras. I. 55.

Such being human nature, it ought not perhaps to be thought surprising, that so many philosophers have been fond of dwelling on the resemblance between the relation of motive and action and that of cause and effect in physics; and have been equally disposed to overlook the difference between them. The unlucky metaphor of the balance, and the analogy between the turn of a balance when loaded with unequal weights in the opposite scales and the determinations of mankind between different motives, occurred to them; it pleased their fancy, engrossed their attention, and has even come to be regarded by many as an important philosophical axiom, which it is folly to call in question. It may well be doubted, whether the doctrine of Necessity would ever have been maintained, had it not been for this analogy; and, but for it, we may be sure that the doctrine of Necessity could not long have kept its ground. For whenever we lose sight of

the *mere turn* of the balance, and consider more accurately all the obvious circumstances of physical causes and effects, nay, even of the motion of a balance itself, we perceive at once, that the doctrine of Necessity is not more contrary to common sense, than it is to the established laws of the relation of cause and effect in physics.

The analogy of the balance must no doubt be obvious and striking; for it has occurred, and has pleased almost universally. But the difference between the turn of a balance and the determination of our will, however difficult it may be to express this difference in words in an unexceptionable manner, must be equally obvious to the apprehension even of the vulgar; as appears from their invincible repugnance to the doctrine of Necessity, which seems, at first sight at least, a fair inference from the analogy of the turn of the balance: Or if a few people should be unreasonable enough to disregard that general repugnance, and to deny the inference from it, still it must be self-evident, that the difference between the turn of a balance

lance and the effects of physical causes is infinite. For the *mere turn* of a balance, though undoubtedly the effect of the greater weight, is not the whole effect, nor does it even bear any proportion to the whole effect, of that weight; which effect, in this argument, we assume as a principle, and indeed know experimentally, to be constantly conjoined with that weight. And if a balance were made, as surely may be conceived, without any resistance to its turning, by diminishing friction, and making the centre of gravity of the whole machine coincide (physically) with the centre of motion, it would turn completely, from the horizontal to the vertical direction, with any the smallest addition or difference of weight at either end of the beam; and of course would be unfit for the common useful purposes of a balance, though it would afford a better illustration even than the common balance in favour of the doctrine of Necessity. Yet in reasoning upon this favourite analogy, the small circumstance of the mere turn of the common balance, (without regard even to the degree or quantity of the turn), has alone been

been kept in view; while the whole effect of the weights in both scales seems never to have been thought of, even by those who admitted the constant conjunction of cause and effect, and who asserted the same with respect to motive and action.

It would no doubt be very foolish to set about proving, and perhaps will be thought needless to attempt to illustrate, this point, of the difference between the mere turn of a balance and the full effect of the weights in both scales, as no person of tolerable capacity can fail to understand it at once, if he will attend to it even for a moment.

But it is worth while to point out, that if a person should be found of such slender capacity as to be incapable of understanding it, or of such a perverse disposition as to be unwilling to acknowledge it, his case is by no means desperate: for though he is doubtless infinitely beyond the reach of argument or reason, the point in question may be made very plain to him, without any thought or reasoning at all. Such a person may be supposed to
have

have all his bodily organs entire, and the full use of his five external senses: trusting to these, I should humbly propose, that, by way of beginning his studies in physics, and acquiring some knowledge of the relation of cause and effect, he place himself under the descending scale of a common balance, when loaded with a thousand pound weight in one scale, and a thousand and ten pound in the other; and that the opposite weight be taken out of the scale by about ten pound at a time. I am confident, that by the time five hundred pound of it is taken out, he will feel distinctly, whether he can understand, or will acknowledge, or not, the difference between the turn of a balance and the full effect of a weight. And if he has any genius for analogy, he will easily extend the notion which he acquires in that way, to every other instance of cause and effect in physics, and of course to every instance of motive and action, if he either believes these two relations to be the same, or conceives that they both involve the circumstance of constant conjunction.

S E C T.

S E C T. XIV.

Observations on an ancient paradox, with respect to the notion of Motive, founded on the analogy between Agent and Motive, and the ambiguity of common language.—Analogy between it and the modern philosophical doctrine of Necessity.

THE philosophical doctrine of the Necessity of human actions, which is a modern paradox, founded on the analogy between the relation of motive and that of physical cause, and rendered plausible, and difficult of detection, by the metaphorical and ambiguous phrases often employed in speaking of those two relations, may be in some measure illustrated by a similar instance of an ancient paradox, with respect to the nature of motives, founded on the analogy between the relation of motive and that of agent, and rendered

dered plausible, or at least tenable, by the ambiguity of many common phrases, which literally express the notion and the relation of agency, but are often used metaphorically in speaking of motives and the relation of these to actions. At first view, we should think it impossible that such a confusion of thought could ever be made, or such an extravagant paradox ever be asserted, either by the most careless or by the most uncandid reasoner. It appears, however, from a very curious epistle of SENECA, that there were philosophers in ancient times, who maintained, that the virtues (which are confessedly motives or principles of action) were living creatures, and literally moved or impelled men to act in a certain way. SENECA states the arguments in behalf of this strange opinion very fully, and then reasons against it at great length, half in jest, half in earnest. As this absurdity may have its use, and as it is very little known, I shall give a short specimen of the arguments on both sides of it.

“ *Animum constat animal esse: cum ipse*
efficiat

Qq

efficiat ut simus animalia, et cum ab illo animalia nomen hoc traxerint. Virtus autem nihil aliud est, quam animus quodammodo se habens: ergo animal est. Deinde, virtus agit aliquid: agi autem nihil sine impetu potest: si impetum habet, qui nulli est nisi animali, animal est. Si animal est, inquit, virtus, habet ipsam virtutem. Quidni? habet seipsam. Quomodo sapiens omnia per virtutem gerit, sic virtus per se. Ergo, inquit, et omnes artes animalia sunt, et omnia quæ cogitamus, quæque mente complectimur.——

Ego in alia esse me sententia professus sum. Non enim tantum virtutes animalia erunt, si hoc recipitur; sed opposita quoque illis vitia et affectus, tanquam ira, timor, luctus, suspicio. Ultra res ista procedet, omnes sententiæ, omnes cogitationes animalia erunt: quod nullo modo recipiendum est. Non enim quicquid ab homine fit, homo est. Iustitia quid est? inquit. Animus quodammodo se habens. Itaque si animus animal est, et iustitia. Minime, hæc enim habitus animi est et quædam vis. Idem animus in varias figuras convertitur, et non toties animal aliud est, quoties aliud facit: nec illud quod fit ab animo, animal est. Si
iustitia

justitia animal est, si fortitudo, si ceteræ virtutes: utrum desinunt animalia esse subinde, ac rursus incipiunt, an semper sunt?" &c. &c.

SENECA, Epist. 113. *passim*.

There can be no occasion to enter into the merits of this strange controversy. I presume, if any person in the present age were to assert the opinion which SENECA combats so acutely, he would instantly be pronounced insane; and probably there would not be a much more favourable opinion entertained of the judgement of one who should set about arguing against it. Yet let it be observed, that it is a speculation or system that corresponds perfectly to the modern doctrine of the Necessity of human actions; both in principle, which consists in the confounding the notions of two different natural relations; and in the style of reasoning, which consists in drawing inferences from the words and phrases commonly employed in a metaphorical sense in speaking of motives and actions, just as if they were literal expressions of thought. It is unnecessary

to make any comparison between the two doctrines in point of rationality: some, no doubt, will think the difference very great, others very little. But whichever of them be the more plausible, I have no scruple to say, that the ancient system is by far the more tenable. Indeed (all regard to common sense, and even to consciousness, being put out of the question, as in candour it ought to be) I see no means of confuting a philosopher, who shall chuse to deny having any self-governing power with respect to his own actions, and to assert, at the same time, that they are absolutely, and as to him irresistibly, determined and produced by certain motives or principles of action, which are animals, and *act* upon him only occasionally, or when they please. I am sure such a doctrine is proof against mathematical demonstration, or, more properly speaking, is beyond the reach of it. Mathematical demonstration, I apprehend, is only applicable to this subject on the supposition, that the living person, or mind, is as inert with respect to the production of any change in itself, as inanimate matter

ter is; and that the motives producing change in it are also things inanimate, which, whether constantly conjoined with their respective actions, or occasionally separated from them, have no power of their own, either of not acting, or of acting according to their discretion. I own I should suspect, that those philosophers whom SENECA undertakes to confute, and takes the liberty to laugh at, had given up their fortrefs, or rather abandoned it, because no body thought it worth while to attack them in it; for it is one of that kind, which a succession of resolute disputants might easily maintain against all mankind, even to the day of judgement.

S E C T.

S E C T. XV.

General illustration and confirmation of the reasonings in the nine preceding sections, from Sir ISAAC NEWTON'S reasonings in his Principia.—Commentary on his argument in proof of his first corollary from the three laws of Motion.—That corollary and argument resolvable into the principles of Inertia of the subject, and constant conjunction of Cause and Effect, or into the latter principle singly, as it implies the former.—Impossibility of assigning a reason, consistent with the principles, for the different result, in the case of lifeless bodies, and in that of living persons.—Absurdity of such an attempt.—Either the inferences must be admitted, or the latter principle must be given up, with respect to Motives and Actions.

I Believe the most satisfactory and most useful method of illustrating and establishing the kind of mathematical reasoning

ing that has been employed to refute the doctrine of the Necessity of human actions as modified by Mr HUME, and maintained to consist in the *constant conjunction* of motive and action, at least with men who are accustomed to scientific reasoning, will be, to analyse NEWTON's first corollary from the three laws of motion, with his argument in proof of it. For it will appear at once, that his argument turns entirely on the *constant conjunction* of cause and effect, and on the *inability* of the body to move itself. This last circumstance, which is comprehended in what NEWTON calls the *inertia* of body, is indeed sufficiently implied in the former, though this is not mutual; and the corresponding principle is equally implied with respect to mind, or living persons, in the doctrine of the *constant conjunction* of motives and actions, as was formerly mentioned; and, at any rate, it is expressly asserted in every doctrine of the Necessity of human actions as proceeding from motives, like physical effects from their causes, and is an essential part of every such doctrine, and seems to be the very point in dispute between

tween philosophers and the vulgar on this subject.

NEWTON's first corollary from the three laws of motion is as follows : *Corpus viribus conjunctis diagonalem parallelogrammi eodem tempore describere, quo latera separatim.*

This corollary evidently consists of two parts or points, and consequently might have been expressed in two separate propositions.

The first point is, That the body must move in the diagonal of the parallelogram supposed.

The second point is, That it must describe the whole diagonal in the same time that it would have described either of the two contiguous sides of the parallelogram separately.

The second point I put out of the question here; because, for reasons formerly mentioned, it is not indifferent to a person

son to go, as it is for a body moving unresisted, or uniformly resisted, to move with any velocity. But if this were the case with a person, there can be no doubt that the whole of NEWTON's corollary would, on the principle of *constant conjunction*, apply to a living person under the influence of combined motives, as well as to a dead body under the influence of similarly combined forces, or physical causes of motion.

It is therefore the first point only of the corollary that I have occasion to consider at present. NEWTON's argument in proof of his whole corollary is as follows: *Si corpus dato tempore, vi solâ M in loco A impressâ, ferretur uniformi cum motu ab A ad B; et vi solâ N in eodem loco impressâ, ferretur ab A ad C: compleatur parallelogrammum A B D C, et vi utrâque feretur corpus illud eodem tempore in diagonali ab A ad D. Nam quoniam vis N agit secundum lineam A C ipsi B D parallelam, hæc vis per legem secundam nihil mutabit velocitatem accedendi ad lineam illam B D, a vi altera genitam. Accedet igitur corpus eodem tempore ad lineam*

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B D,

B D, five vis N imprimatur, five non; atque ideo in fine illius temporis reperietur alicubi in linea illa B D. Eodem argumento in fine temporis ejusdem reperietur alicubi in linea C D, et idcirco in utriusque lineæ concursu D reperiri necesse est. Perget autem motu rectilineo ab A ad D per legem primam.

This important argument is one of the plainest and simplest that can be conceived, and such as I am persuaded a child of seven years of age would easily understand. It is in substance merely this: That while the body, in consequence of one cause, is moving, or tending to move, in the direction of one of the contiguous sides of the parallelogram, in consequence of the other cause, it is tending to move in the direction of the other contiguous side of it. It seems tacitly to be taken for granted by NEWTON, that the body *must* be in some place, and that it cannot be in two places, nor be moving in two different lines, at once; which it may be presumed no person will dispute; and therefore, that at any moment of the time
in

in which it is moving, it *must* be found in some point of a line lying in the intermediate direction between the two in each of which it tends to move : the precise line of this motion being determined by those of the other two, which would have taken place if the respective causes of them had been applied singly.

The merit of the reasoning employed by NEWTON, in proof of his corollary, must depend on the thoughts expressed by his words employed in enunciating it, and not upon the words themselves; else the corollary, though true in Latin, might be false in Greek or in English; which is absurd.

Let us then consider accurately the import of his words, and observe which of the many circumstances expressed by them are essential to the force of his argument in proof of the composition of motion.

1. *Corpus*, a Body; a Being, extended, figured, solid, divisible, moveable, unintelligent.

telligent, inert, that is, incapable either of changing its own state, or of preventing it from changing, in consequence of any cause applied.

Take away, or, what is the same thing for our present purpose, put out of consideration, extension, figure, solidity, and divisibility; suppose the body a mere atom, or an indivisible moveable point: NEWTON's argument remains unshaken.

Suppose the atom, or the extended, figured, solid body, to have intelligence: or, if this be thought an absurd or extravagant supposition, suppose a very intelligent man, with all his senses about him, but perfectly paralytic, or bound hand and foot, so as to be unable to give himself the smallest motion, or to prevent himself from moving, by laying hold of any thing, to be placed in the same circumstances with the *body* in NEWTON's first corollary: NEWTON's argument still applies in full force to such a Being; and whenever the experiment is tried, or any one equivalent to it, as in the case of a
person

person in a swinging chair or bed, the result is strictly agreeable to the corollary.

But let us next suppose the Being in question, whether extended, figured, solid, and divisible, or only a shapeless atom, whether intelligent or senseless, to be capable of moving of itself.

NEWTON's argument does not apply at all to such a Being: for, instead of going in the direction of the diagonal, it may go in the very opposite, or in twenty different directions successively. It may go backwards and forwards; it may move in a circle, or describe a spiral or a regular polygon; and this notwithstanding the two forces applied.

It may be proper here to remark, that motion, the *effect of one cause*, is always, and, as we have reason to think, necessarily, rectilinear, progressive, and uniform in its velocity: but motion, the *action of one agent*, may be either progressive or retrograde, or each alternately; it may be

be uniform, or accelerated, or retarded, or all successively; it may be either rectilinear, or curvilinear, or each in their turns. The acceleration of the motion of a falling body, the oscillatory motions of pendulums, and many other such instances, which at first view might appear contradictions to the alledged uniformity of motion, the effect of one cause, will not be found so when duly examined.

2. *Vires*, Forces, or causes of motion. In NEWTON's reasonings, commonly nothing more is meant by forces than merely certain tendencies to move; and this he is at much pains to inculcate, even in his definitions. But the term is often used to denote the supposed causes of such tendencies to move; as in the present argument; which produces no embarrassment, nor even ambiguity, as the cause and its effect, the tendency, are conceived to be constantly conjoined. If this were not uniformly conceived to be the case, the use of such a term, that is really ambiguous, would produce the greatest confusion, and would completely mar his whole

whole reasonings. The nature of these causes NEWTON did not specify, and in the *Principia* he frequently warns us, that he did not know it: nor indeed was it of any consequence to him, in his mode of reasoning, of what nature the causes of motion were, provided only they were constantly conjoined with their effects. That this circumstance was always implied in NEWTON's conception of them, and that it is essentially necessary to his argument in proof of his first corollary, is very evident. Suppose, in the case put in that corollary, that one of the forces should be separated from its effect, then the body, instead of moving in the diagonal, *must* move in the direction of one or other of the two contiguous sides of the parallelogram. Suppose both the forces to be separated from their effects, the body, instead of describing the diagonal, *must* remain at rest at the point where it was originally placed.

Even the clause in NEWTON's argument, *Nam quoniam vis N agit secundum lineam A C ipsi B D parallelam, hæc vis per legem*

legem secundam nihil mutabit velocitatem accedendi ad lineam illam B D a vi alterâ genitam, is implied in the notion of the constant conjunction of cause and effect, is resolveable into it, and is in truth little else than a particular mode of expressing it, adapted to the case in question.

Without inquiring minutely into the extensive and various meanings of the verb *agit*, and consequently the ambiguity of it in certain cases, we may safely say, that, as here employed by NEWTON, it means merely *is the cause of motion*; and that the sense of the passage would be exactly expressed in the following words: *Quoniam vis N est causa motus secundum A C, hæc vis non erit causa ullius mutationis velocitatis accedendi ad B D.* For *muto*, as being an active verb, as well as *ago*, according to its full literal meaning, involves and expresses a notion of something different from merely being a physical cause of change, and something different from what NEWTON was reasoning about, or seems to have had in view in this argument.

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Such being the meaning of the clause at present under consideration, it may easily be shewn, that it is fully implied in the notion of the constant conjunction of cause and effect; or, in other words, it may be demonstrated from this principle.

For, according to the hypothesis, or case put in the corollary, no causes are applied to the body, but M and N. Uniform motion, with a certain velocity in the direction A B, is the full effect of M when applied singly; and uniform motion, with a certain velocity in the direction A C, is the full effect of N when applied singly. If, then, when both M and N are applied together, the velocity of the motion of the body, either in the direction A B, or in the direction A C, is either encreased or diminished, this change, which we consider as an effect, must either take place without a cause, or it must proceed either from M or N, the only two causes that are applied. If it be said to take place without a cause, it is a specific instance of the separation of cause and effect, as much as the application of a cause which should

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not be followed by its proper effect would be. If it be said to be the effect of M, or of N, it must be either over and above their usual full effect when each of them is applied singly; or it must be either wholly or partly, instead of their usual full effect. If it be over and above the usual full effect of them respectively, then they are not constantly conjoined with their effects, having a greater effect at one time than at another; and the amount of the difference between the effect of either of them, when applied singly, and when applied in combination with the other, is the quantity of effect from which at one or other of those times it was separated. For the sake of conciseness and distinctness, this may be expressed in algebraical form, as follows :

$$\begin{aligned} X &\equiv A, \\ Y &\equiv B, \\ X \frown Y &\equiv A \frown B, \end{aligned}$$

according to the assumed principle of constant conjunction :

But

But if it be supposed to be

$$X \rhd Y \equiv \underline{A + C} \rhd B,$$

or if it be supposed to be

$$X \rhd Y \equiv A \rhd \underline{B - D},$$

then C or D are the quantities of effect separated at one time or another from the causes X and Y.

If it be said, that this new effect is not additional, or over and above the usual full effect of either cause singly applied, but either wholly or partly, instead of that usual effect, still it would be an instance of the separation, either total or partial, of a cause from its effect; for even if the quantity of the new effect were the same with that of the old, the quality or kind of it would be different. But while the body advances towards B D with the same velocity as if N were not applied, and towards C D, with the same velocity as if M were not applied; and accordingly at the end of the given time

is found, at the point D, the difference from the effect of M corresponds exactly, both in quantity and quality, to the full effect of N; as the difference from the effect of N applied singly does to the full effect of M; so that both causes are fully conjoined, both in respect of quantity and quality with their respective effects.

The case of the direct concurrence or direct opposition of forces or causes of motion is more familiar to us than the combination of them, or at least is more readily and clearly apprehended on account of its perfect analogy with the simple operation of addition and subtraction in arithmetic or in algebra. It may therefore be used to illustrate the preceding argument with respect to the combination of forces, as the same general principle applies to them all.

If a force or cause of motion X produced a velocity as A, and another force Y produced a velocity as B, on the principle of constant conjunction, the concurrence of X and Y must produce a velocity as

$A + B,$

$A + B$, and the opposition of them would give a velocity as $A - B$. To suppose $X + Y$ to produce a velocity as $A + B - C$, or as $A + 2B$, or to suppose $X - Y$ to produce a velocity as $2A + B$, or as $A + B + C$, would at once be acknowledged to be an extravagancy, or little better than an absurdity; and, on examination, it would be seen, that on those suppositions there must be sometimes an effect without a cause, or else causes separated from their full usual effects.

If the principle of constant conjunction be conceived to make a part of the relation of cause and effect, they are complete absurdities, as hath been already shewn. And so universal and irresistible is that notion of the relation in question, that if those suppositions were expressed in arithmetical numbers, and explained by any familiar illustration, such as sailing, either against or with a current, any ordinary man would be struck with the absurdity of them. A common seaman, I presume, would see at once the absurdity of them in all the three cases of concurrence, opposition,

opposition, or combination.—Let it be remembered, however, that these reasonings are given merely as necessary inferences from the principle of constant conjunction of cause and effect, not as any proof of the necessity of that constant conjunction, nor even of the truth of it, as a mere matter of fact; though no doubt they indirectly tend to prove the truth of it, as they themselves are found true as matters of fact. The nature of the relation, in other respects, is a rational subject for further investigation.

Call one of the forces, to which NEWTON's argument relates, Gravity, and the other Magnetism or Electricity; or one of them Hunger, and the other Thirst; or one of them Anger, and the other Fear; or one of them the desire of earning 100 guineas, and the other the desire of earning 50 guineas; or, what is much better for the purpose of precise reasoning, call one of them M, and the other N, as NEWTON does in his argument in proof of the first corollary; still, if their conjunction with their effects be constant, NEWTON'S

TON's argument applies to them completely.

It has often been observed, and I believe is now universally acknowledged, that NEWTON's argument in proof of that important corollary, is no demonstration. Indeed he himself does not give it formally as a demonstration, though it is very plain, that he relied on it as being essentially a perfect one. In both these respects, I apprehend, he was clearly in the right. The argument is deficient in the form; but it has completely the essence of a demonstration. It is deficient in this respect, that the conclusion is not clearly resolved into all the simpler principles that are assumed in the reasoning, whether these be self-evident necessary truths, or axioms, or only ultimate physical facts or laws of Nature. Of the former kind are the necessity of a body's being in some place, and the impossibility of its being in two places, or moving in two different lines, at once: of the latter kind are the constant conjunction of cause and effect, and the inability of the body to move itself.

self. But this indeed is virtually implied in the first law of motion; and both the constant conjunction of cause and effect, and the inability of a body to move itself, are implied in the common notions of *cause* and of body. Yet NEWTON's argument is essentially good demonstration; for all these simple truths, whether necessary or contingent, are universally implied in the notions of mankind concerning those things about which he reasons; and they would be expressed in good definitions of those notions, or explanations of the terms, which he, like other men, employs to denote them. This seems to have been very uniformly felt and understood by men of science, who have almost universally acquiesced in NEWTON's argument. None indeed could call in question the truth of the conclusion as a matter of fact; for there is neither obscurity, nor difficulty, nor contradiction, in the experiments that confirm it; but a few have inclined to refuse their assent to the corollary as a point demonstrated, or a necessary truth; but these, I believe, have been men who, from the force of old prejudices,

ces, could not, or would not understand it. As every demonstration must ultimately rest on some first principles; as no more principles should be assumed for any demonstration than what are essentially and absolutely necessary for it; as it is always pleasing, and indeed for other reasons desirable, to resolve a demonstration into as few principles as possible; and as nothing more is wanting to complete the demonstration of NEWTON's corollary, but merely to specify those circumstances which are tacitly assumed by him, and are implied in his argument; I hope I shall not be accused of arrogance when I say, that I conceive this little commentary to be a demonstration of his first corollary, and of the necessary composition of motion, from a combination of forces, neither directly concurring, nor yet directly opposing one another: and the same principles apply to all other cases of motion from the various applications of any causes or forces, whether concurring or opposing.

In short, grant him but the *inertia* of body, and the *constant conjunction* of cause

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and effect, the necessity of a body's being in some place, and the evident impossibility of its being in two places, or moving in two different lines, at once; which are all of them axioms of physics, or laws of human thought, with respect to body, space, motion, cause, and effect, as much as the axioms of geometry are laws of human thought with respect to quantity; and NEWTON's corollary with respect to the composition of motion is plain demonstration: take away any one of these things, or disprove any one of these supposed physical axioms, and the *Principia* of NEWTON do not deserve the name of reasoning.

The two last of these things are universally admitted with respect to living persons, as well as with respect to inanimate bodies: nor can they, without the most palpable absurdity, be denied. The two first of them are also maintained with respect to living persons, as well as to inanimate bodies, in the philosophical doctrine of the necessity of human actions, as it has been modified and asserted by

Mr

Mr HUME: and the same consequences *must* necessarily follow from them.

This disquisition, therefore, I give as complete demonstration, not merely of the falsity, but of the absurdity, of the doctrine of the constant conjunction of motive and action, and of the necessity of human actions as resulting from this relation between them and the motives of them, and of the perfect resemblance or identity of the relation of motive and action with that of cause and effect in physics.

If any person will not acquiesce in my demonstration, and give up Mr HUME's doctrine, he has his choice of two things which he may do. He *must* either admit as truths all my conclusions from that doctrine, and ten thousand others, equally false, and more ridiculous, that may be drawn from it; or he *must* shew some error in the reasoning employed, which in truth is not mine, but Sir ISAAC NEWTON's. I only analyse it, and make a new application of it. He *must* likewise find means

to disprove, or at least *must* be prepared to deny, and argue against, many of the best known and most important facts in physics.

For it is necessary to point out, that nothing can ever be done towards evading or explaining away those false and ridiculous conclusions that have been drawn from the doctrine of the constant conjunction of motive and action, by assigning a reason, consistent with the principle, for the striking difference of the result of it in the case of living persons, and in that of inanimate bodies.

I have no doubt but that, by the help of ambiguous words, and groundless, or perhaps unintelligible hypotheses, arguments, or talk at least, may be mustered up, even on the plainest subject, which it will be impossible either to understand or to answer. But to seek for such a reason in the present case, is an absurdity; for, from the nature of things, there *can be none such*: and it is folly to listen to any thing that can be said in favour of such
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an opinion. This point, which is of some consequence, it would be tedious to explain in general terms; but this kind of explanation of it is not needed, as it may be sufficiently proved and illustrated by one or two instances.

If a mathematician should assert, that he had constructed a plain triangle of such curious proportions, that one side of it was longer than the other two put together, and that the three angles of it were greater than two right angles; and should undertake to assign a reason for these differences between his triangle and all others, and even offer to demonstrate these strange properties of his triangle: What would men of sense and men of science think of him?

Or if a chemist should tell us, that he had discovered a new fossil, or contrived a new composition of metals, of such wonderful properties, that though it was perfectly inert, and very ponderous, yet a ball of it, when projected obliquely to the horizon, went in a straight line, and with

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an uniform velocity, till the whole force of projection was spent; and that then it fell to the ground, with a retarded, or with an uniform velocity; and should undertake to assign a reason for these singular properties in his new metal: What should we think of such a chemist?

It is plain, that both the mathematician and the chemist must be mad, and that they would be undertaking absurdities: and it would be absurd to listen to them, unless from curiosity to know what species of insanity possessed them, or with the charitable intention of ministering to their relief. For if the human faculties may be trusted in any case, we may be sure, that Omnipotence itself does not extend to such undertakings as theirs. And if the most ingenious of men will nevertheless make such attempts, by all their ingenuity and all their labours, they can do no more than demonstrate their own insanity.

The triangle may be any thing that a triangle can be; equilateral, isosceles, or scalene; right angled, acute angled, or obtuse

obtuse angled; of any size, of any proportion, or lying in any plane; still, if it is a plane figure, bounded by three right lines, any one of these lines *must* be less than the other two taken together, and the three angles of it *must* be equal to two right angles.

The metal may be any thing that a body can be; nay more, it may be every thing that mind can be, except that one thing which is excluded by the fundamental principle of the doctrine of Necessity: the ball made of it may be solid or hollow, hard or soft, rough or smooth, big or little, hot or cold, black or white, or party-coloured, and of any shape; it may be supposed to have all the piety of *David*, and all the wisdom of *Solomon*; all the virtues of *Socrates*, or all the vices of *Nero*; all the poetical genius of *Homer*, or all the philosophical knowledge of *Newton*: still, if it is inert, and heavy, and projected obliquely to the horizon, and if the conjunction of cause and effect be constant, it *must* describe a curve, and fall with an accelerated velocity.

Now,

Now, according to Mr HUME's doctrine of the Necessity of human actions, and the *constant conjunction* of motives and actions, a living person in relation to motives and actions is precisely in the situation of an inanimate body in relation to projection and gravity, or to any other physical causes: and if that doctrine be just, the same general result, to wit, the constant composition of actions (for instance, of voluntary movement considered as an action) from the combination of motives, as being a strictly necessary inference from those principles, without the smallest regard to any other properties in the subject or person, or to any other circumstances whatever, *must universally* take place, like the composition of motion from the combination of forces in physics; all idle talk to the contrary notwithstanding.

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S E C T. XVI.

Second part of the Dilemma stated.—The inertia of Mind —Irresistible influence of Motives which are not constantly conjoined with their respective Actions or Effects, but occasionally separated from them.—Repugnance of this occasional separation or conjunction to the assumed principle, That every Event or Change is an Effect implying a Cause.—Impossibility of its proceeding from any Cause constantly conjoined with its Effect —Necessity of its either coming to pass without any Cause, and purely by chance, or else being produced by an Agent having optional or discretionary power to separate or to conjoin Motives and Actions.—Supposition of its coming to pass without any Cause stated, and considered on the principle of the doctrine of Chances.—Necessary inferences from it, that are false, and repugnant to the universal notion of the relation of Motive and Action.

AS it is an unquestioned axiom of logic, That a proposition directly contradictory to one that is false, must be
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true;

true; and as it appears from the preceding observations and reasonings, that the doctrine of the *constant conjunction* of motive and action is not merely false, but absurd; it must be admitted, that whatever the relation in question may be in other respects, it is only an *occasional and separable connection*. And this conclusion, I believe, is perfectly consistent with the general and natural conviction, or what is called the common sense, of mankind.

Still, however, it may be asserted, and probably it will be asserted by those who are keen partisans of the doctrine of philosophical necessity, that though the connection of motive and action is but occasional and separable, the volitions and actions of men are absolutely determined and produced by motives, as physical effects in inanimate matter are by their causes; and that men have no independent power of resisting motives, or of acting, except merely as impelled by them.

Such we may reasonably suppose to have been the persuasion of philosophers who
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maintained the doctrine of Necessity before the time of Mr HUME; who, so far as I know, was the first that clearly and explicitly maintained the doctrine of the constant conjunction of motive and action, and made this principle the foundation of the necessity of human actions. It is very plain, at least, that Mr HUME regarded himself as the author of that doctrine, and that he considered it as an important discovery in science.

This doctrine, which, in contradistinction to Mr HUME's, may be called the old or common doctrine of Necessity, is as repugnant to general belief, or common sense, as Mr HUME's is; and, what is more to the present purpose, like his doctrine of Necessity, it may be demonstrated mathematically to be false and absurd. For though these two doctrines are very different in one respect, yet, upon the whole, they are very near akin; and as they both involve the same false principle, to wit, the *inertia* of mind, the same mode of reasoning, with only a few very slight alterations, may be applied to both, and

will be sufficient to prove, that the common doctrine of Necessity, as well as Mr HUME's, must be false, because its necessary consequences are inconsistent with plain matter of fact; and that it must be absurd, because it is inconsistent with itself.

It appears to me, I confess, that this old or common doctrine cannot be maintained with near so much plausibility as Mr HUME's doctrine of Necessity; that it is liable to many peculiar objections, as well as to most or all of those to which his is liable; and therefore, that though it might be refuted by itself, without regard to his, yet the refutation of it is effectually involved in that of Mr HUME's. And this was one reason for considering so minutely the principle of constant conjunction, and illustrating the consequences of it at so great length.

The doctrine now to be considered, and pursued to some of its necessary consequences, is, "That men cannot act, except as impelled by motives, nor avoid
" acting

“ acting as they are impelled by motives;
“ which motives are *not constantly conjoin-*
“ *ed* with the actions to which they
“ prompt.”

This doctrine it may be proper to consider, first, in its most simple form, and without any of those modifications and additions which the ingenuity of philosophers has contrived to obviate or palliate some of its most striking defects, and which modifications are now generally conceived to make an essential part of it.

One of the most obvious difficulties that occurs with respect to this doctrine, is the striking inconsistency of it with what seems to be assumed as the fundamental principle of every doctrine of Necessity, to wit, that every event or occurrence, even the voluntary action of a living creature, is to be regarded as an effect implying a cause; that is, standing in the very same relation to something else, that any physical effect stands in to its cause; for instance, motion

to impulse; or expansion, or fusion, or evaporation, to heat.

The conjunction of two things which were separated, or the separation of two things which were conjoined, at other times, is plainly a kind of *Event*: as, for example, drunkenness, from the drinking of pure spring water; or motion in the particles of lead, or of wood, from the approach of a magnet; or a stone sometimes ceasing to gravitate or tend to the earth; or a snow-ball sometimes not melting as usual in a fire: and such an *event*, according to the fundamental principle assumed, must be an *Effect*, implying a *Cause*. But then this cause must either be constant in its influence, or not constant. If it is constant, the occasional separation and conjunction stated in the hypothesis in question is impossible. If it is not constant in its influence, then according to the fundamental principle assumed, there must be a cause for its sometimes having effect, and sometimes not having effect; and so on, *ad infinitum*.

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But it is surely unnecessary to enlarge on this point; as it must be self-evident to every person who considers it even for a moment, that if the conjunction of motive and action be only occasional, it cannot depend on a cause whose effect is uniform and constant; and therefore, that motives and actions must either be sometimes conjoined, and sometimes separated, without any influence of a cause, or any operation of a voluntary agent, or Being who possesses some kind of optional or discretionary power; that is, purely and strictly by chance; or else that there must be an optional or discretionary power lodged somewhere, of conjoining or separating them. Such a power common sense tells us, that we ourselves possess; and it may fairly be presumed, that if it had been consistent with the speculations of the assertors of the doctrine of Necessity to allow the possibility of it any where, they would have taken it to themselves, at least as willingly as they would have allowed it to any other Beings.

Since, then, the supposition of the influence

fluence of a cause whose effect is constant and uniform, is inconsistent with the hypothesis of the occasional conjunction of motive and action; and the supposition of an optional or discretionary power of sometimes conjoining and sometimes separating them, is inconsistent with the fundamental principle of Necessity; there remains no other supposition, but that motives and actions are occasionally conjoined or separated merely by chance, without either a cause, or the interference of a voluntary free agent.

This last supposition, which is also palpably inconsistent with the assumed fundamental principle of the doctrine of Necessity, to wit, that every *event* is an *effect* implying a cause, will to many appear too extravagant and foolish to merit any discussion; yet perhaps it may not be amiss just to point out one plain inference from it, contrasted with the corresponding inference from the doctrine of constant conjunction. On the latter supposition, it is demonstrably impossible for men to play at chess:—on the former supposition, it is demon-

demonstrable, that chess must be a game of chance, more purely even than hazard is. And the same may be said with respect to the whole game of human life, which in many respects resembles very much a game at chess.

On most other subjects, perhaps on every other but the very one at present under consideration, so striking a repugnance of any doctrine to plain matter of fact, would be regarded as sufficient proof of its falsity; and such an inconsistency of any doctrine with itself, or of one part of it with another, would be regarded as evidence of its absurdity: nor does there appear any good reason why the case should be different with respect to this subject. But as the doctrine of Necessity has long been allowed to have a peculiar privilege of withstanding all usual kinds of philosophical evidence, it may be useful to prosecute the inquiry still farther, to some more particular consequences, which may be brought to the test, either of strict mathematical demonstration, or of some more simple, open, unequivocal experiments;

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than either a game at chess, or the general conduct of human life.

Admitting, then, that men cannot act except merely as impelled by motives; and that motives are but sometimes conjoined with their respective actions, and sometimes separated from them; and setting aside all inquiries concerning the manner in which this comes to pass; it might still be a very rational and pertinent question to ask, How often are they conjoined, and how often are they separated? or, What proportion does the frequency of the conjunction bear to that of the separation of motive and action?

This question perhaps it will be found difficult to answer with great accuracy; but luckily this is not required for the present purpose. Considering that there are generally two or three, and often twenty or thirty, different motives to chuse among, only one of which can be conjoined with its proper action; it might not be unreasonable to suppose, that the separation happens at least three or four times

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as often as the conjunction. But, for the sake of easy calculation, we may assume as the proportion of the frequency of the conjunction and the separation of motive and action, that of equality, and suppose them conjoined just as often as they are separated.

Then it follows necessarily, that if 100 needy porters were offered 100 guineas each, on condition that they should carry as many letters but 100 yards, only about fifty of them would be moved to do the work required, and the rest would remain idle, or waiting for their chance of their ordinary employment. Nay, if 100,000 men had wanted food for three days, and were on the point of starving, (and such situations are not imaginary, for they have occurred often in the course of warfare); and if plenty of good food were set before them, and they themselves were left at full liberty, only about 50,000 of them would eat, and the remainder, not from any motive, but for want of an effectual one, that is, one conjoined with its action, would not eat, but would die of

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hunger,

hunger, with plenty of food within their reach.

If the supposition of the separation of motive and action being as frequent as the conjunction of them shall be deemed unreasonable, let us suppose the separation of them to happen but once in a million of times. Then to be sure, if the experiment suggested were fairly tried on a million of needy porters, or on a million of hungry soldiers, only about one of each million would remain inactive, while all the rest would earn their money, and eat their meat. But it will probably be thought by many, that even that one of each million would be one more than would be found to act, or rather to remain inactive, in so absurd a manner. However, that we may not be thought too scrupulous on such an occasion, we may allow the conclusion in question to pass as a truth.

But then it will surely be allowable, and even proper, to vary a little the circumstances of the experiment, that we may have an opportunity of examining the result

sult of it in cases which will occur more frequently than once in a million of times; and consequently of seeing whether the necessary consequences of the doctrine in question be consistent with plain matter of fact.

Let any number of men, for instance a million, be supposed placed at the point A, (see Diagram II.), and let it be supposed, that to each of them there are applied at once two different motives, such as hunger and thirst, anger and fear, pleasure or profit, one of these motives prompting them to go to the point B, the other prompting to go to the point C, at a certain rate; and let the men be supposed assured that they cannot attain both the objects which in such circumstances they must have in view, by taking them successively :

What must become of them ? or how will they act, consistently with the hypothesis ?

As the conjunction of motive and action

tion is supposed to be broken once in a million of times, and as two millions of motives are supposed to be applied to one million of men, it may reasonably be expected, that two of them shall feel the influence of only one of the two motives applied to them, and accordingly go directly either *to B* or *to C*, at the rate required. But then if both motives should *chance* to be separated from their proper actions, in the same persons, at the same time, which, for aught that appears, is possible, even these two men *must* remain inactive at the point *A*. But perhaps this possibility will be thought too improbable to deserve attention.

Let us then consider the case of the odd 999,998 men, whom we placed at the point *A*, under the influence of two different motives, which we may call *AB* and *AC*; for there can be no doubt that it does deserve attention.

As these men are unable to act except as impelled by motives, and as the motives impelling them are *ex hypothesi* inseparably

parably connected with their proper actions, the supposed number of cases of disjunction in a million of instances being already deducted, their situation is very nearly that of the body in the first corollary from the three laws of motion; and if there be truth in the *Principia* of NEWTON, they *must* begin to move in the diagonal A D, and continue to move in that direction till they arrive at the point E. Then they will be under the influence of directly opposite motives, E B and E C, one of them sufficient to induce them to go at a certain rate to B, the other sufficient to induce them to go at the same rate to C. If these are equal, they *must* remain at rest at that point, if they should die for it, till some other motive occur to put them in action, as the ass should have done between two bundles of hay. If the opposite motives are unequal in force, the men, *ex hypothesi*, *must* yield to the stronger, and go accordingly, either *towards* B or *towards* C. But it may be doubted, whether they will ever get quite to B or to C; and it cannot be doubted, that they cannot go from E to B,
or

or to C, at the same rate that they would do if they felt the influence of only one of the motives applied : for if they did, the other motive would be completely separated from its proper action more frequently than is consistent with the hypothesis at present in question ; for the proper deduction of one instance in a million has already been made ; and of course they will not attain that object, the desire of gaining which was their motive for going to B or to C, for instance, the money promised them ; because they do not comply with the condition on which it was offered them, namely, going at a certain rate to one or other of those points.

Any proportion of frequency between the conjunction and the separation of motive and action may be assumed at pleasure, and still the same notorious and ridiculous falsities, (which it would be needless and absurd to put to the test of experiment), only in different proportions of frequency to one another, will be necessary consequences of the supposed *inertia* of

of mind, and irresistible influence of motives.

These conclusions I give as matters of mathematical certainty, but not of mathematical precision. They all depend on the doctrine of Chances; and therefore all that is demonstrable with respect to them, or in such simple cases as I have put, is self-evident, is, that it is an equal chance, on the hypothesis assumed, that the result will be what I have specified. Thus, for instance, in the first case put, of the equal frequency of the conjunction and of the separation of motive and action, it cannot be proved, that 50,000 out of 100,000 very hungry men will die of hunger, though they have plenty of food at their command; but it is demonstrable, or rather self-evident, that, on the hypothesis assumed, it is an equal chance that such a number will do so. No person of candour, I dare say, will regard this acknowledged and necessary imperfection in the doctrine of Chances as any imperfection in my argument. But if any should be so unreasonably captious, I shall admit frankly,

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that, instead of 50,000, there may be but 49,500, or but 40,000, or but 20,000, out of the 100,000, that will remain so foolishly inactive; and they in return *must* admit, that it is also possible, and just as probable, that 50,500, or that 60,000, or that 80,000, out of the 100,000, may remain inactive, and die accordingly.

This, therefore, I conceive to be mathematical demonstration of the falsity of the common doctrine of Necessity, *as hitherto stated.*

SECT.

S E C T. XVII.

The common doctrine of Necessity stated, with the modification, that the strongest Motive alone is conjoined with its proper Action, and that all the weaker and opposing Motives are separated from theirs.—Various circumstances of falsity and absurdity in this doctrine, which are to be demonstrated.—Preliminary Questions stated. — What is meant by the force or strength of such Motives? — What is the test or measure of their strength?

IT will perhaps be thought very needless to have taken the trouble to give such a demonstration of the falsity of a doctrine that never was maintained; for it will occur at once to every person who ever heard of the controversy, that the doctrine of Necessity, as generally asserted, has always comprehended another cir-

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cumstance, not stated in the preceding argument, to wit, that the strongest motive always prevailed, and had its full effect, while the weaker motives were overpowered, and had no effect at all; that is, were completely separated from their proper actions.

The common doctrine of Necessity, with this peculiar modification, has been, That the strongest motive alone is conjoined with its action, while all the weaker opposing motives are separated from theirs. And even this supposition may easily be shewn to be false and absurd, by tracing its necessary consequences.

But it was proper, in the first place, to consider the more simple supposition, in order to shew, that *it* was untenable, and that such a modification of it was indispensably necessary, and not a mere arbitrary and ornamental addition: for the same reason that in mathematical demonstrations, *ad absurdum*, we state and refute every possible supposition inconsistent with the one which we mean to establish, tho' these

these may be such as no person ever thought of maintaining.

The doctrine of Necessity, even with this modification, that motives have different degrees of strength or force, and that the strongest are constantly conjoined with their actions, while the opposing weaker motives are always * separated from

* This, I believe, is more than any of the assertors of the doctrine of Necessity will chuse to maintain, or even to admit: for it is plain, that, in many cases at least, the opposing weaker motives have effect, as appears by their diminishing or modifying the effect of the stronger and prevailing motive; for instance, in the case of justice tempered with mercy, passion moderated by prudence, and many others. But I know not how otherwise to express the general hypothesis of the Necessitarians, without involving again the doctrine of Chances, of which surely enough has been said already. The defect in this case, and the *impossibility* of giving, in general terms, an accurate expression of the hypothesis in question, I apprehend, proceeds not from any fault or any error of mine, but is the necessary result of the imperfection of the doctrine itself, which is repugnant, not only to vulgar belief, but to many obvious facts, which philosophers themselves must admit. Such facts have,

from theirs, may be shewn to labour under several very grievous defects, as bad at least as those of the other suppositions which have already been considered. It may be shewn,

1. That it is inconsistent with plain matter of fact.

2. That it is inconsistent with itself.

3. That there is no such force or strength in motives as is represented in the doctrine of Necessity, even setting aside the principle of constant conjunction.

4. That, from the nature of things, there can be no such force in motives.

5. That many, perhaps most, of those who have asserted the doctrine in question with the greatest confidence, have

have, in general, been disregarded by philosophers, or explained away; while those only were attended to, and insisted on, which favoured, or might be construed to favour, their darling system.

never

never in their hearts believed that there was such a force or strength in motives.

Nor is there any great difficulty in proving these points, however strange some of them may appear; but there is the utmost difficulty in investigating two other preliminary points, which are of much consequence in this inquiry. The first of these preliminary points is, What is meant by the strength or force of motives that are not constantly conjoined with their respective actions? The second is like to the first, and very intimately connected with it, namely, What is the test or measure of the comparative force of such motives?

These two points I shall consider, as much as possible, separately, to prevent confusion; for each of them will require a minute and pretty long discussion.

S E C T. XVIII.

Remarks and Queries concerning the notion of the absolute Strength or Force of Motives that are not constantly conjoined with their respective Actions.

IT has already been shewn, that motives are not constantly conjoined with their proper actions, as physical causes seem to be with their respective effects. But, nevertheless, it is held, that motives have still some peculiar property, or at least some established relation to their proper actions, which may be termed their absolute force or strength; which is very analogous to the established relation between physical causes and their effects, commonly termed the force or influence of such causes; and which completely excludes any independent activity or self-governing power in the person or agent.

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It is plain, then, that the constant conjunction of a motive, with its action, and the strength of a motive, are two different things; and I apprehend it would be very desirable, and of the most essential importance in this inquiry, to know precisely, either by means of strict logical definition, if such can be given, or else by means of clear and explicit illustration, *per instantias singulares earumque series et ordines*, what is meant by the strength of a motive when separated from its proper action, or as we express it in common language, which a person *resists*, or according to which he does *not* act.

In order to explain more accurately than can well be done by common and general words, the nature and importance of the *desideratum* which I here point out, and of the question which I propose, I shall suppose, that there are applied to a person, at the same time, two particular opposite motives; that is, motives prompting to different actions; which actions, either in their own nature, or by special compact, are absolutely inconsistent, so that both of

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them cannot take place separately, nor can they be combined into a sort of *tertium quid*. Such oppositions of motives, and inconsistencies of actions, are by no means imaginary; they happen often between duty and interest, pleasure and profit, anger and fear, or between different kinds of interest and of pleasure. For the sake of distinct reasoning about any two such opposite motives, we shall call one of them X and the other Y. We shall suppose, that X is fully conjoined with its proper action; and that Y is completely separated from the action to which it prompted; the conduct of the person acting being precisely, both in kind and in degree, what it would have been, if Y had not been applied, and if X alone had been applied to him. In every such case, X is said to be the stronger, Y the weaker motive. This implies surely, that there is in Y a certain portion of strength; and, at any rate, this must be admitted, else no increase or multiple of Y, nor any addition of strength to it, could ever make it equal to X, or greater than X. But it is not even pretended that this is the case:

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on the contrary, it is always understood, and acknowledged by those who speak of the force of motives, that the addition or concurrence of two or more weaker motives may amount to a greater sum of force than one other motive; though this motive be much stronger than any one of the others taken singly. Many a man, it must be acknowledged, will take a great deal of trouble, or commit a vile piece of roguery, for 100 or for 1000 guineas, who would not have done the same for one, or even for ten.

It would no doubt be a great help to our reasonings on such subjects, and perhaps would at once put an end to all disputes about them, if any circumstance about the motive X, different from what takes place in Y, in consequence of which, a person unable to act, except as impelled by motives, is influenced by it, and not by the opposite motive, could be specified or defined, without involving the very point in dispute; that is, making the whole system an everlasting *petitio principii*. For any thing that appears, nothing more

would be wanting to make Y the stronger, and X the weaker motive, but that the person should act as prompted by Y, disregarding the influence of X. It would be a great satisfaction to know what hinders a person from acting in that manner; or even to be assured, that he is hindered, or is unable to act in that manner, from whatever circumstances his incapacity may proceed.

I must here repeat what is said (SECT. IV. p. 133.) concerning the necessity of guarding against a very foolish controversy which might naturally occur with respect to the application of the term *Motive*. We are not inquiring, whether those things usually called motives, or principles of action, such as appetites, passions, desires, aversions, judgements of duty, expediency, &c. are to be called motives at all times when they take place, or only when action proceeds from them; but what is the nature of the relation between them and actions, and what is meant by their force or strength. If any person should assert, that the desire of wealth, the fear of death,
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the cravings of violent hunger, or the extremity of torture, were not motives in those cases in which the persons to whom they were applied resisted them, and, notwithstanding them, persevered unshaken in their duty, he might indeed evade the argument concerning the constant conjunction of *motive* and action, and the question concerning the absolute force of *motives*; but the same argument with respect to the constant conjunction, or the occasional separation, of those *things* and their respective actions; and the same question with respect to the force or strength of those *things*, as relative to action, and yet separated from it, would await him.

It must not be thought that this is a dispute about a word: it is an important question about a thing denoted by a word. The words *force* or *strength*, as applied to motives by those who deny independent activity to persons, shall be allowed, unquestioned, to signify any conceivable quality or condition of a motive, or any relation, possible or impossible, between motive

tive and action, which those who use it can specify, and which does not involve the very point in dispute, to wit, the volition and action of the person, and the relation between these and the motive according to which they take place. For if this be included in the definition of the strength of a motive, to be sure, any motive with it is stronger than any motive without it. But then, to say that a person acted in a certain way, because the motive prompting to do so was the strongest of those applied, would be merely an identical proposition, equivalent to saying, that he acted according to the motive according to which he did act.

The phrase *strength* or *force of motives*, in the common popular acceptation of it, is abundantly well understood, and is familiar to us all. But in this sense, far from excluding the independent activity of mind, or being inconsistent with the liberty of human actions, it always implies and refers to these things; as in the case of strong temptation from evident interest or pleasure, of great and acknowledged

ledged duty, nay, even of irresistible compulsion.

It is not disputed, nor can it reasonably be disputed, that the vulgar always believe, that, in ordinary cases, a person who is only tempted may resist the temptation; that a person who merely ought to do a certain action, may yet not do it; and that a person absolutely compelled to do any thing, cannot help doing it; but that if the force or degree of the motives applied to him had been much less, he would not have been compelled, and might have avoided doing it. But philosophers endeavour to shew, that all these vulgar persuasions are erroneous, and to account for all the facts or phænomena, without allowing any independent activity to the person, on the supposition, that in all those cases the relation of motive and action is either very nearly or precisely the same with that of cause and effect in physics; and that there is in every motive that is followed by its proper action, some quality, or at least some relation to the person, which may be termed its *force*, which
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is greater or stronger than the corresponding quality in the opposing motive, and by which the volition and action of the person is absolutely and irresistibly determined, though not constrained.

It may be worth while to consider a little the case of compulsion, as it will shew very plainly the imperfection of the philosophical notion of the force of motives.

There are few motives stronger, or more universal, than the love of life, or fear of death, and the abhorrence of pain. Few motives either are more nearly equal, respectively, in different individuals. Hence they are almost universally employed as means of compulsion. It must, however, be acknowledged, that they are not equally powerful in their influence in all different men. They are conceived, and I believe very properly, to be strongest, and especially the fear of death is thought to be so, in those persons who have little vigour of mind, (no matter at present for the propriety of the phrase, it

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is sufficiently explained by the common application of it). But, disregarding this difference, which no doubt is considerable, we shall suppose the fear of death to have no greater influence in the most cowardly than in the bravest, in those who have least, than in those who have most vigour of mind; and shall regard the ordinary force of this motive as a kind of standard, by which the force of others may be measured. This supposition, though inaccurate, is the most unfavourable that can be made with respect to the argument which at present I have in view.

The abhorrence of pain of any given intensity, must be supposed very nearly the same in all mankind; and it must be supposed, that the abhorrence of any pain must be very nearly in proportion to the intensity and the continuance of it. With respect to this motive, therefore, we have a distinct notion of the force or strength of it, (at least according to the vulgar conception of the force of a motive), considered by itself, and without involving the action to which it prompts. Moreover,

from various circumstances, we are enabled, in many cases at least, to judge of the intensity of the pain, as well as of the continuance of it, and of course of the abhorrence of the person to it, or the force of this motive; not indeed with mathematical accuracy, but with tolerable precision.

Now, these two motives, the fear of death, and the abhorrence of present pain, have often been set in opposition. By an absurdity equally shocking to reason and to humanity, and which, it is to be hoped, will soon come to an end in every civilised country, the torture has often been applied to obtain from criminals a confession of their guilt, which could not otherwise be proved, and for which, as soon as proved by their own confession, they were to suffer death. In some countries, a criminal, even though convicted on the clearest evidence, must not be put to death till he confesses his crime, and acknowledges the justice of his sentence. In all these cases, the fear of death and the abhorrence of pain are motives directly opposed; and, according

according to the philosophical doctrine of Necessity, and peculiar notion of the force of motives, the result *must be* as follows : Either the fear of death, which is supposed to be of uniform strength, or very near it, must be found universally stronger, or it must be universally weaker, than any kind of torture commonly employed ; or there must be a *certain degree* of torture uniformly sufficient and requisite to get the better of the fear of death in all ordinary persons. The two first of these conclusions we may safely disregard, and consider only the last of them, which perhaps will appear plausible or certain. But it has been found in fact, that there is a vast difference among men with respect to what they can or will bear in the way of torture. Of two men, whom we may, and indeed *must*, suppose equally unwilling to be hanged, one perhaps yields very quickly to the slightest tortures that are commonly used, the other resists for a long time the most violent that can be invented. Nor can this difference be with any plausibility attributed to the different degrees of strength of the opposite motives in the different persons.

fons. For this is not only a gratuitous supposition, and therefore unphilosophical; but, moreover, it involves certain suppositions that are in the highest degree improbable, if not quite inadmissible. It implies, either that one of the persons is much less unwilling to be hanged than the other, which is scarce credible, and very difficult or impossible to prove; or else, that a slight degree of torture, and for a short time, is a stronger motive than a violent degree of the same kind of torture for a long time; which appears little less than absurd. To say that a certain degree and continuance of torture is a stronger motive with the person who yields to it, than with him who resists it, is only begging the question once more; even supposing such a sentence to be intelligible, which it certainly is not, till it be specified what is meant by the strength or force of a motive, which is neither constantly conjoined with its proper action, nor yet refers to or implies the independent activity of a person.

These remarks, however, are given only

as an illustration of the obscurity, ambiguity, and imperfection, of the philosophical *notion* of the strength of motives; not as a proof of the falsity of the opinion concerning it. For hypotheses and conclusions as groundless, and as extravagant, as these are, have been maintained or admitted on the same subject; and so perhaps will these be. At any rate, the inquiry into the exact import of a *notion* ought to precede the attempt to explode it, or to refute opinions that involve it, or that relate to it.

S E C T.

S E C T. XIX.

Remarks on the difficulty or impossibility of finding a proper test of the absolute force of Motives that are not constantly conjoined with their respective Actions.—The phrase strongest Motive is synonymous with the phrase Motive according to which a person acts ; and is therefore nugatory in this investigation.

THE other great difficulty and imperfection of the philosophical doctrine concerning the strength of motives, is, the want of a proper test or measure of it.

The supposition, that the strongest always is that which prevails, is not merely a constant *petitio principii*, but it is an identical proposition, till such time as some condition or quality of motives be specified,

fied, or at least some definite relation of them to their respective actions, which may be termed their *force*, independently of their apparently having effect, or being conjoined with their actions; such as, the constant conjunction of cause and effect in physics, (which, on strict observation, is found to take place even in those cases where, on a superficial view, it is not to be perceived); the occasional exertion of the muscular strength of men or other animals; the established relation between evidence of various kinds and belief or conviction, either in the common affairs of life, or in different branches of science; or, what is surely nearest to the strength of motives in the philosophical sense of the term, (if there be such a thing), the strength of motives, according to the vulgar notion of it; duty, interest, pleasure, or various degrees of them, concerning which mankind are very generally agreed, and which may easily be specified without any regard to their having effect or not. For we may know precisely, in many cases, how a person *ought* to act, either in point of duty or interest, and be certain, that

that one motive was, in this point of view, stronger than the opposing one: we may know in many cases, too, how a person *would like* to act, which is another kind of strength of a motive; but in neither of these cases can we be equally sure, that he will act either as he ought to do, or as he would like most to do. And this uncertainty, and the difference of the result in different cases, we conceive to depend on something in the person himself, not on any quality in the motives, nor yet on any relation between them and the volitions and actions of the person.

According to this vulgar notion of the force of motives, it is plain, that no motives can be commensurable, or even appreciable with respect to one another, but such as are precisely of the same kind; duty with duty, interest with interest, pleasure with pleasure, torture with torture, terror with terror. But the universal and promiscuous commensurableness of all motives, bearing relation to the same action, is implied in the philosophical notion of the force of motives.

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It must surely be very evident, that, on the supposition that the connection of motive and action is but occasional and separable, and yet that men can act only as they are impelled by motives, we can never have any reason to believe, from any person's conduct, that the motives prompting to those actions which he performed were stronger than the opposing motives; for the strongest motives might *chance* to be separated from their proper actions, while the weakest were conjoined with theirs; just as if the effect of a heavy body in turning a balance was only occasional, a cubic inch might sometimes outweigh a cubic foot of solid lead; though the latter be more than 1700 times as heavy as the former: for whenever the weight of it *chanced* to be separated from the usual effect on the balance, it would be as if it were not.

If a juggler could contrive a balance of so peculiar a kind, that, though to all appearance perfectly just, and at least as incapable as any other balance [of moving or turning itself, when a cubic inch of

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lead

lead was put into one of the scales, and a cubic foot of lead into the other, sometimes the inch, sometimes the foot, should preponderate ; What should we think of him and his balance ? He would no doubt gain credit for his ingenuity, and probably make a fortune by his contrivance : but it may well be doubted, whether, in the four quarters of the world, a single individual could be found, who would believe that the various turns of the balance depended merely on the different weights of the pieces of lead put into the scales. The vulgar, according to custom, and as they have recently done with respect to the figure that plays at chess, would at once set about accounting for what they saw, by supposing, either that the artist himself had some secret means of directing the movements of his balance, or else that some other *living* Being, though perhaps invisible to them, inclined the balance sometimes the one way, sometimes the other : few, if any, would venture to maintain, that the different turns of the balance depended either on the occasional and separable connection

nection of cause and effect, or on the circumstance of the different pieces of lead having different degrees of weight at different times. Indeed this last hypothesis seems to surpass, not only the belief, but even the understanding of mankind. Nor would the case be different, if such a juggler were to exhibit a number of balances so oddly constructed, that though they all seemed perfectly just, yet what preponderated in one did not preponderate in the others; and this in an endless variety of combinations. Most men would be startled at the hypothesis, that the things weighed in them were really of different weight when put into the different balances; and that the balances themselves were so constituted, as sometimes to be more affected by one kind of weight than by another. Yet an hypothesis very nearly or exactly the same, and requiring at least an equal stretch of faith and understanding with the one just now stated, must be held by those who, without admitting any independent activity in the persons, and merely on the supposition of different degrees of force in the motives applied, and

the various conditions of the persons to whom they are applied, undertake to account for the different conduct of different individuals, in circumstances where the motives applied to them must be understood to be of equal force respectively in them all. The ambiguity of the phrase, *force of Motives*, which has one meaning, and that a very rational one, as employed by the vulgar, and a very different, very obscure, and ill understood one, as used by philosophers, seems to have contributed to conceal the impropriety, and even the real import, of such an hypothesis.

On considering, again and again, this and the preceding section, I have always found in them something peculiarly unsatisfactory and disagreeable; which I presume will be at least as striking to any person who may have the curiosity to read them, as it does to the author of them. Yet, on the most careful examination,

tion, I cannot find any error, either in the observations, or in the reasonings contained in them; and I believe the peculiarity of them, and the seeming defect in them, proceeds from this circumstance, that they are an unsuccessful attempt to find out the nature and the proper test of the absolute force of motives that confessedly are not constantly conjoined with their respective actions, as physical causes seem to be with their effects.

But it must be observed, that my want of success in this attempt is no fault of mine, nor any defect in my observations and reasonings: it proceeds from the nature of the subject of investigation. My undertaking was not to explain the nature of the absolute force of motives separable from their effects, nor to give a satisfactory test of the force of such motives; but to inquire strictly, whether or not there was such a force in them; whether or not any proper test could be given of it; and to find out, if possible, what could be meant by such a phrase as the absolute force of motives separable from their proper

per actions, and not implying or referring to independent activity, or self-governing or self-determining power in the agent or person. I did not undertake to make sense of that doctrine, but only to find out, whether sense could be made of it or not. The result of my inquiry, which I own has been conducted rigorously, but I trust candidly, has been unfavourable to the doctrine in question. The notion of the absolute force of motives separable from their effects, and not referring to the self-determining power of a person, appears to be one of those which are very properly termed by BACON *falsæ, confusæ, et temerè a rebus abstractæ*, on which account, *nihil in iis quæ superstruuntur est firmitudinis. Itaque spes est una in inductione verâ*. In plain English, That notion is nonsense; and the doctrine founded on it is not a jot better; and therefore the subject must be carefully examined anew by accurate observation and experiment, and strict inferences from these: Which is just what I am endeavouring to do. But it would have been to no purpose to say this of it, though true, without carefully examining it: it would
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even have been illiberal and unphilosophical to have said so before this examination; and it may be thought not very civil to say so after all. But in a philosophical inquiry, it is necessary above all things to be fully understood.

S E C T.

S E C T. XX.

Supposition of the absolute Force of Motives not constantly conjoined with their respective Actions, with the modification that the strongest Motive alone is conjoined with its proper Action, while the opposing weaker Motive is always separated from its Action, and that the prevailing Motive is always the strongest, in so far as it is intelligible, stated accurately, — considered mathematically.—Necessary inferences from it, that are absurd and impossible.

FROM what has been said in the two preceding sections, it must be evident, that the notion of the absolute force of motives not constantly conjoined with their respective actions is at best very vague, confused, and imperfect; and that even supposing that notion to be rational, it must be very difficult, if indeed it be possible,

possible, to find an accurate test or measure of the supposed force or strength of such motives. But leaving such investigations to the care of those who are interested in finding out or making a distinct meaning, and a fair unequivocal test, for the force of motives; disregarding whatever is obscure or unintelligible in the force of motives, according to the philosophical system concerning it; and confining our attention solely to those circumstances of it which are explicit and intelligible, it will be easy to shew, that no such force of motives does or can exist, or has generally been believed to exist, even by philosophers themselves.

It may appear a piece of singular presumption, to undertake to reason about a thing so imperfectly understood as that at present in question. But the presumption and difficulty in this case are not so great as may at first be thought; and the reasonings may be sufficiently distinct and conclusive, if those circumstances alone are considered and reasoned about, which may be accu-

rately expressed, and which are clearly understood.

The chief of these are,

1. That the absolute strength or force of motives may be measured or estimated, with a certain degree of precision, by the actions proceeding from them.

2. That the comparative strength of motives may be measured, with a certain degree of precision, by the relation of different, and especially of opposing motives to one another; and that universally the motive according to which a person acts, or which is said to prevail, is stronger than the opposing motive, according to which he does not act, or which in common language he is said to resist.

3. That there exist among different motives, with respect to strength, the relations of equal, greater, and less.

4. That different motives may either concur with one another, or oppose one another.

5. That

5. That when they concur, the strength of them is added together.

6. That when equal motives directly oppose one another, the strength of those on one side completely counteracts and destroys that of those on the other side; and that the one force may be conceived to be deducted from the other, leaving of course no remainder.

7. That when motives of unequal strength oppose one another, the strongest always prevails, and is followed by its proper action, which is always in kind, and *generally** in degree too, what it would have been if no opposing motive had been applied.

8. That a motive applied singly, or a number of concurring motives applied at once, and unopposed, will inevitably be followed by their proper actions, where there is no physical impediment to these; which last circumstance must be under-

* Vide p. 357. Note.

stood to be the constantly implied condition in every case.

The 6th and 7th of these specified circumstances are equally and indispensably necessary, as parts of the doctrine in question. But as they are absolutely inconsistent with one another, no relation between motives and actions, and no kind of strength or force of motives, which implies them both, can from the nature of things ever exist.

This inconsistency of the two circumstances, and the consequent impossibility of that system which involves them both being true, will appear very clearly from considering the case of equal and opposite motives, with the supposed necessary result in all such cases, and the expedients commonly employed to account for a different result *universally* taking place in fact.

It is held, that in such a case no action can be performed. The corresponding conclusion with respect to causes and effects

fects in physics is always found true as a matter of fact. And the same conclusion is said to hold equally true with respect to motive and action : but of this there may be some doubt, as few or no instances can be produced in support of it. It has never yet been found on trial, that an ass placed between two equal and similar bundles of hay, died of hunger in that situation for want of a motive to determine him to the one or the other bundle. But this *constant* failure of the experiment, which it may be remarked is not observed, but foreseen, is accounted for by *supposing*, either that the bundles will not be exactly equal and similar, and equally distant, or else that the ass, though a creature of no very quick discernment or lively imagination, may yet have penetration or fancy enough to perceive or imagine some reason for preferring the one to the other bundle. As we have no means of conversing with asses, so as to learn their thoughts on the point in dispute with sufficient accuracy, it may be expedient to acquiesce in this account of the matter. Though it must be observed, that it is trying the truth of a supposed fact by its agreement

greement with an hypothesis, instead of trying the truth of the hypothesis by its agreement with matter of fact; which is altogether inconsistent with good reasoning, and such an impropriety as never would be admitted, nor even thought of, in any branch of physics.

Conceiving that men had a better chance of knowing something of their own thoughts, than of those of any quadruped, I have endeavoured to attend accurately to my own thoughts in similar cases: yet, after the most careful attention to them, I cannot find that I have any difficulty in chusing one of two chances which I know to be perfectly equal; or in chusing one card out of a pack, where I am sure there can be no reason for preferring one to another. But I have been assured, with much seriousness, by good metaphysicians, that even in these cases I had always a motive for my preference, though I would not own it; and that if I had no other motive for my choice, the greater facility of pronouncing one word than another, would be sufficient to determine me to say the one rather than the other. Of this I
am

am not in the least conscious, but rather, as I think, of the reverse: however, as it was in vain to reason with men who knew my own thoughts better than I did myself, I was obliged to give up the point.— But there are some other points, relating to the same subject, which I cannot and will not give up.

Let a porter be offered 100 guineas, if he will carry a letter ten miles due east, and at the same time let him be offered an equal sum, if he will carry the letter the same distance due west; and let him be assured, that he cannot earn both the sums that are offered: Will he stand still, as the ass should have done, between two bundles of hay? or will he chuse between going east and going west, and earn 100 guineas accordingly, as he cannot hope to earn 200?

It will be admitted, I presume, that he will not stand still, but carry the letter either one way or the other. But this, according to the hypothesis, he cannot do, without some motive or ground of preference,
real

real or imaginary. Whenever such a thing is found or supposed, the opposite motives are no longer equal; and as soon as they become unequal, the strongest will prevail, according to the *hypothesis*, and will have its full effect, as if unopposed.

Now, let us consider accurately this kind of reasoning, and express it in mathematical form, for the sake of simplicity and precision, and that we may the more easily trace the necessary consequences of the *hypothesis*.

The force or strength of the two original great motives which are equal and opposite, we shall call X and Y.

The strength of the minute additional motive discovered or fancied by the porter on one side, we shall call Z.

Z, we know, scarce bears a sensible proportion to X or Y; but for the sake of easy calculation, we shall suppose either X or Y taken singly to be equal to 100 Z.

From

From these principles, and the hypothesis of the absolute force of motives which are not constantly conjoined with their respective actions, we have, by necessary consequences, the following simple equations.

$$X = Y,$$

$$Y = 100 Z,$$

$$X = 100 Z,$$

$$X - Y = 0,$$

$$X + Z - Y = X + Z *,$$

$$Y = 0,$$

$$X = 0,$$

$$100 Z = 0,$$

Q. E. D.

Though it be very unusual, and in general very needless, to offer any commentary on such a simple piece of mathematical reasoning as the preceding equations,

* This equation may appear absurd, after the preceding four. In common algebra, or in physical reasonings about causes and effects, or even in metaphysical reasonings about motives and actions, on the principle of the constant conjunction of motive and action, and the perfect identity of this relation with that of cause and effect in physics, it must have been $X + Z - Y = Z$. For X is stated at first as equal to Y . But such is the doctrine of Necessity as present under consideration.

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yet,

yet, as there is something uncommon, both in the subject and in the conclusion, in the present case, it may be worth while to consider with peculiar care every step of the reasoning employed.

The three first equations express with sufficient accuracy the comparative force or strength of the different motives applied in the case put, according to the doctrine of Necessity, with those needful modifications which we are now considering.

The fourth equation expresses accurately the necessary result of the opposition of equal motives, according to the doctrine of Necessity.

The fifth equation expresses accurately (perhaps some may think too rigorously, but of this afterwards) the necessary result of the opposition of unequal motives, according to the doctrine of Necessity, with the modification already specified, and allowed to be indispensably requisite to it, namely, That the strongest motives alone have effect, and that they
have

have their full effect, just as if they were unopposed.

The sixth equation is a simple, and manifestly necessary inference from the fifth.

The seventh and eighth equations are manifestly necessary inferences from the sixth, the first, and the third; for if Y be equal to nothing, and X and 100 Z be severally equal to Y, they must also be equal to nothing.

In plain English, there is not, nor can there be in motives, such a kind of force or strength.

It will perhaps be thought, that the doctrine of Necessity has been stated too rigorously, in the preceding equations, and especially in the fifth of them. It may be said, that the minute additional motive Z, though sufficient to turn the scale when it was exactly balanced before, was too inconsiderable to have any effect by itself, or even to add to the effect of the strong motive X; and that accordingly the force of

3 D 2

X + Z

$X + Z - Y$ would be just the same with that of X by itself. If the doctrine of Necessity were just, I apprehend it could not be stated, nor conclusions be deduced from it too rigorously, any more than from the commonly received principles of mechanical philosophy, or of pure geometry. But not to run any risk of being thought too scrupulous or rigid on such a point, I shall admit, that the additional minute motive Z , when added to X , makes no greater sum of force, and would produce no greater effect in point of action, than X by itself, and unopposed. But then I must beg leave to state even this *hypothesis* in mathematical form, for the sake of precision and distinct reasoning. We should then have the following simple equations.

$$X = Y,$$

$$Y = 100 Z,$$

$$X = 100 Z,$$

$$X - Y = 0, \text{ (as before),}$$

$$X + Z - Y = X,$$

$$Y = Z,$$

$$Z = 100 Z.$$

Which is absurd.

The

The four first of these equations are just the same with the four first on the former more rigorous supposition and state.

The fifth equation is an accurate expression of the result, on the supposition that the minute additional motive which turns the balance does not add any thing to the force of the greater motive, with which it concurs, but only allows it to have its full and proper effect as if unopposed.

The sixth equation is a manifestly necessary inference from the fifth. And let it be remembered always, that the weaker, and consequently overpowered motive, though completely separated from its proper action, does not, even according to the doctrine of Necessity, cease to have force or strength; as appears by two or more motives which concur, being stronger than one opposing them, though weaker than it when taken singly. Thus, in the present case, it would be admitted, that $Y + \frac{Y}{10}$ would be a greater sum of strength

strength than $X + Z$; though $\frac{Y}{10}$ taken by itself would have much less force than $X + Z$, or even than X by itself.

The seventh equation is a plain and necessary inference from the sixth and the second. For if Z be equal to Y , and $100Z$ be also equal to Y , Z and $100Z$ must also be equal to one another.

Such, without exaggeration or misrepresentation of any kind, is the absurdity which ambiguous words, and loose reasoning, and vague and groundless *hypotheses*, multiplied without end, whenever there was thought to be occasion for them, have hid from the view of many philosophers distinguished for the acuteness of their understanding, and the extent of their knowledge.

I am aware of the ridicule that may attend the attempt seriously to state and to refute such absurd opinions; but if this attempt be ridiculous, what shall we say of the conduct of those whose pretended science has made it necessary;

who

who have been proud to maintain as an important piece of knowledge, that very doctrine, which, when stripped of all ambiguity, and made intelligible, appears too absurd even to deserve a refutation?

S E C T.

S E C T. XXI.

Reasons for wishing to try experimentally, as a mere matter of fact, the conclusion demonstrated in the preceding Section.—Important use that may be made of such an experiment.—Difficulty of finding a proper case for the subject of experiment, independent of all hypotheses, and all appeals to consciousness.—Such a case pointed out by the aid of Mathematical reasoning.—The result, according to the doctrine of Necessity, however modified, is inconsistent with plain matter of fact, with the common notion of Motive, and with the belief and expectation of those who assert the doctrine of Necessity; yet is possible in itself, and the corresponding inference with respect to physical causes and effects is universally true, and is always expected to prove so.—Inference from this.

AS there cannot fail to be among men of science a very great dislike, and perhaps some distrust, of such general abstract

stract reasonings as those contained in the preceding section, with respect to the subject of this Essay; I conceive it may be worth while to consider it in a different point of view; and, setting aside all regard to the *impossibility*, which has been demonstrated, of there being in motives such a kind of strength or force as is required and implied in the doctrine of Necessity, with the needful modifications, that the relation of motive and action is but an occasional and separable conjunction, and that the strongest motive is always conjoined with its proper action, while the opposing weaker motive is separated from the action to which it prompts, to inquire into the truth of some necessary inferences from this doctrine, considered merely as *matters of fact*; admitting, what perhaps never was admitted before, and certainly ought not to be admitted again in any argument, *that to be possible which has been shewn to be absurd.*

Though I am aware of the censure and ridicule that may attend the attempt to reason on any subject *beyond* an absurdity,

which is universally and justly regarded as an ultimate test in all scientific investigations, I have a particular reason, besides the general one, of wishing to show, that the doctrine which I combat is experimentally false in point of fact, as well as absurd, for endeavouring to do so on the present occasion. I wish to shew, what I am confident is the case, and with due pains may be shewn, that those who have most zealously maintained the doctrine of Necessity, and asserted in the strongest terms their own most firm belief in it, and their hearty contempt for the opinions and understanding of such as were of a different persuasion concerning it, were only confounded in point of words, but never deceived in point of thought, by their own reasonings; that they always retained the same notion of the relation of motive and action, and of the independent activity, or self-governing power, or liberty, of mankind, which other men have; and that they never seriously in their hearts believed their own doctrine.

Strange

Strange and impracticable as this attempt to demonstrate mens most intimate thoughts, in spite of themselves, may at first sight appear; yet I think it must be admitted at once by every competent judge, that is, by every man of science and candour, that it is fairly accomplished, when I demonstrate certain necessary inferences from the doctrine of Necessity, which are possible, and even easy; which are strictly agreeable to what takes place in all instances of cause and effect in physics; between which relation and that of motive and action, those who maintain the doctrine in question assert the analogy to be perfect; which are of such a nature, that when expressed cautiously, and in general terms, they would be admitted as truths too obvious and generally acknowledged, either to admit of doubt, or to require any proof or illustration by experiment; and yet are such as, when stated particularly, and without ambiguity, no assertor of that doctrine will admit as true, nor even as probable, nor even as doubtful, and as requiring to be put to the test of experiment.

The fairness and the certainty of this singular test of the most secret thoughts of men, will, I trust, be established by the following considerations.

It is universally admitted, as well by those who deny as by those who maintain the doctrine of Necessity, that belief or conviction is purely an involuntary act, operation, or state, of the human mind; and that it is absolutely and irresistibly produced and determined by various kinds of proof or evidence, each of which has its own peculiar province. Thus, consciousness, perception, memory, testimony, intuition, (I mean the faculty by which we know the truth of geometrical and other axioms), reasoning, induction, demonstration, severally command, with unresisted sway, the belief of all men of sound intellects, with respect to their proper subjects.

Of these different grounds of belief, none is conceived to be stronger than strict reasoning, whether in the form of complete and regular syllogisms, or in the
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more concise form of mathematical demonstration, founded on principles which are well understood, and unfeignedly believed. It is well known, that though it be always needless, yet it is always possible, and indeed easy, to resolve a mathematical demonstration into a chain of regular syllogisms: but this is hardly ever done, because such a chain of syllogisms must be three times as long as the demonstration, and not more clear nor convincing. An author already quoted, whose moderation and candour will not be called in question, has not scrupled to give it as his opinion, that a man who could admit the *major* and the *minor* propositions of a just syllogism, and yet deny the conclusion of it, would be a greater monster than a man with two heads. The same may be said, with equal truth, of one who should admit the axioms of geometry, and all the steps of a demonstration, and yet deny the conclusion of it. For my own part, I do not believe there ever existed such a monster; and sure I am, that no man of science will ever pretend that he has the misfortune to be such a one.

one. If any person were so unhappily constituted, he must be for ever incapable of reasoning, and unfit to be reasoned with.

But it must be admitted likewise, that whenever the conclusion demonstrated is absurd and impossible, as, for instance, that two things equal singly to one and the same thing are not equal to one another, or that a part is equal to the whole; or like the two conclusions demonstrated in the last section as necessary inferences from the doctrine at present in question, that a force may be equal to another, and much greater than a third, and yet all three of them be equal to nothing; and that a force may be an hundred times as great as itself; then it cannot be believed, and the principles from which it was deduced must be given up. It is therefore only when the conclusion demonstrated is possible, as well as consistent with the principles maintained, that it is to be admitted; as, for instance, that a just balance will turn on putting into one of the scales a certain weight, with which it
had

had formerly turned; or that a man of good sense will act as prompted by a certain motive, when it is either altogether unopposed, or opposed only by a motive or combination of motives weaker than itself.

It can scarce be necessary to add, that when any error can be pointed out in a supposed demonstration, no further regard is due to the conclusion of it. But it may be proper to mention, that a short and simple piece of mathematical reasoning cannot, without the greatest injustice, and a degree of absurdity, be pronounced erroneous, nor even distrusted, till some particular error is pointed out in it; and when this is done, there can be no further dispute about it.

What should we think of a man, who, on getting to the end of the 47th proposition of EUCLID, should instantly take the alarm at the conclusion of it, and, without pointing out any error, either in the axioms or the chain of reasoning, that led to that conclusion, declare roundly,
that

that he did not, and could not, believe that the square of the hypotenuse is equal to the sum of the squares of the other two sides of a right angled plain triangle?

Or what should we think of a man who, after admitting the laws of motion as stated by NEWTON, should deny at once the first corollary from them, and deny the possibility of the formation of a curvilinear orbit from the combination of a projectile and a centripetal force, and the acceleration of the motion of a heavy body falling unresisted, and the retardation of it when rising from a projectile force; and who should declare, that he thought it unnecessary even to put such conclusions to the test of experiment, as being notoriously and ridiculously false?

We should scarce be intitled to say, that such persons were mad; for there have been no instances observed, so far as I know, of such a madness. In the highest degree of madness, to be sure, all the usual connections of thought are broken, and
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the lunatic is incapable of thinking steadily on any subject even for a moment : in cases of perfect stupidity or idiocy, the very faculty of thinking seems to be suspended or lost : and in both these cases the power of reasoning is of course at an end. But in the ordinary state even of madness, the lunatic reasons with justness, and sometimes with admirable acuteness, though from very erroneous principles ; which I consider as a good physical proof, that certain relations among our thoughts are almost or altogether indefeasible.

Now, what is the most candid or favourable judgement that we can form of the conduct of one, who, in point of reasoning, acts more irrationally than an ordinary lunatic, by refusing to admit as true, or even as probable, an inference which is unquestionably possible, and strictly deduced from principles which he asserts ? The most obvious and natural supposition surely would be, that he was either incapable of reasoning, or else, that he did not believe the principles which he

asserted. And the most favourable opinion that I can form of such a person is, that he did not understand the principles which he asserted, and that he had some other principles which served to direct his judgement, tho' perhaps he had paid little attention to them. Indeed, unless something of this kind interfered, it is as plainly impossible for a person who is acting *bona fide* to refuse his assent to inferences justly deduced from principles which he acknowledged, as it is for a pendulum to begin, or to vary, or to stop its own motion.

Though every conclusion which is a strictly necessary inference from a false principle must likewise be false, and tho' there are many conclusions from the doctrine of Necessity, which may easily be tried experimentally; yet it is a matter of great nicety to select unexceptionable subjects of experiment for the purpose of proving, that the doctrine in question is inconsistent with plain matter of fact, and repugnant even to the secret conviction of those who most confidently assert it in words,

words, and who seem to have been most successful in the singular attempt to deceive themselves with respect to their own thoughts.

The circumstances from which this nicety and embarrassment proceed cannot fail to be understood from what has already been said in the course of this Essay, concerning the resemblance or analogy between the relation of cause and effect in physics and that of motive and action, and between the relation of motive and action according to the system of Necessity, and this relation according to the popular persuasion of liberty; concerning the facility of framing hypotheses to explain away the most obvious facts, to the satisfaction of those who know so little of scientific reasoning as to listen to such hypotheses; and concerning the unsatisfactory and fruitless result of all appeals to consciousness with respect to what a person thinks or feels, whenever this comes to be a matter of dispute.

The cases of the various applications of

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motives,

motives, which we should most naturally think of trying experimentally, with a view to ascertain whether the doctrine of Necessity, with the needful modifications already mentioned, be just or erroneous, are chiefly the following.

1. A motive applied by itself.
2. Two or more motives which concur or prompt to the same action applied at once.
3. Two or more motives of *unequal* force directly opposing one another; that is to say, prompting to different actions, which, either by nature, or by special compact when the motives are applied, are absolutely inconsistent; so that the person may chuse or determine which of them he will do, but can do but one of them.
4. Two or more motives of precisely *equal* force directly opposing one another.

5. All

5. All motives whatever completely withdrawn.

A moment's reflection will be sufficient to satisfy any person, that all these cases may be tried experimentally times without number, as in fact most of them are tried every day, without tending in the least to ascertain the point in dispute.

Thus, with respect to the three first of them, if the person acts according to the single motive applied, or according to the concurrent motives, or according to the strongest of the opposing motives, which it is to be expected he will do, no inference of any importance towards deciding the controversy either way can be drawn from his conduct. For the visible manifest result, which a spectator may observe and judge of, is just what was to be expected, either on the supposition of Necessity, or on that of Liberty: I mean, on the popular notion of Liberty as conceived by mankind; not on that notion of Liberty which has been imputed to them by those who assert the doctrine of Necessity;

fity; which notion is widely different from theirs, and plainly amounts to a denial of there being any such relation between motive and action, that we can ever reason from the one to the other.

And with respect to the same cases, if the person does not act as prompted by the single motive applied, nor as prompted by the concurrent motives, nor as prompted by the strongest of opposing motives; as well as with respect to the fourth and fifth cases, if the person acts notwithstanding the equal force of the opposing motives, or acts without any known or obvious motive; it is easy to contrive hypotheses which shall reconcile the facts observed with the system of Necessity, to which at first view they seem very unfavourable. The dullest metaphysician can *suppose*, that the person acting in such a manner had some secret motive for doing so, which either by itself, or along with the other acknowledged and apparent motives, was sufficient to turn the balance and determine his will.

Nay,

Nay, strange as it must appear to one who is unacquainted with this controversy, such a mode of reasoning has been brought to the form of a regular system; and it has been gravely maintained, that when a person acts in opposition to a motive singly applied, or in opposition to concurrent motives, or according to a weaker motive in opposition to a stronger, the fantastical desire of shewing liberty is the motive of his action. Mr HUME's *Essays*, vol. 2. *Note F. on p. 100.*

I do not find, however, that Mr HUME has ever inquired into the nature of this fantastical desire of shewing liberty; nor pointed out who is the author, or what is the source of it; nor investigated what relation it stands in to the person acting; or whether it is in any degree dependent on him, or to what degree it is so. It would, however, be very foolish to argue against such a system: it plainly consists of words, not of things; and words beget words, as BACON justly observes.

But the most disagreeable circumstance
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that attends the bringing of such conclusions as the preceding from the doctrine of Necessity to the test of experiment is, that such an attempt almost inevitably involves and requires some kind of appeal to consciousness. As the question is not, Whether there be a relation between motive and action? but, What is the nature of that relation? we can scarce avoid paying some regard to what we feel or think in every case where we act, in whatever relation our action may stand to the motives of it; and such thoughts of ours must mingle themselves with our reasonings; and in one respect they certainly ought to do so; not indeed with a view to the strict decision of the question, but with a view to give us real solid knowledge of the relation of motive and action.

But whatever knowledge such a conduct may give an accurate and impartial observer, it tends rather to perplex than to decide the controversy, and to make it appear difficult in fact, when it was only so in words.

When,

When, after the most careful and impartial attention to my own thoughts, I give the fairest and most accurate account of them, in certain circumstances, that I can, I am but on equal terms with any other person, who, with equal professions of impartiality and care, gives a directly contradictory account of his thoughts in similar circumstances. Nay, if he chose to avail himself of the ambiguity of common language, or even employed it *bona fide* but carelessly, he would have the advantage of me in point of plausibility. But, setting aside this consideration, I do not see what claim to regard or credit one of us could have more than the other. An impartial person might suppose, that we were differently constituted: he might suppose, that one or that both of us were by nature or habit incapable of attending to our own thoughts with sufficient accuracy; or that one or both of us were too keenly engaged in controversy to be capable of attending to our own thoughts with sufficient impartiality: nay, a spectator of an uncharitable disposition might be apt to suspect, that one or other of us

was prevaricating most vilely in the account which he gave of his own thoughts. Perhaps we might even find it difficult to avoid expressing, or at least conceiving, some such unfavourable opinion of one another. It is plain at least, that the most confident and positive assertions which we could utter in contradiction to one another, could never amount to any proof, either of the judgement or of the candour and veracity of either of us, nor ever tend to decide the controversy in the judgement of any impartial person of good understanding. Nor can there ever be a doubt, that it is incumbent on every person who undertakes to reason on such a subject, to avoid with the utmost care every case or subject of experiment which may give occasion to such unphilosophical contradictions, and such illiberal suspicions.

I trust it will be evident, that this can be done only by selecting as the subject of experiment a case wherein the result according to the popular, and what appears to me the just, notion of the relation of motive and action, does not coincide with

with what must be the result according to the doctrine of Necessity, or what actually is the result in corresponding cases of the relation of cause and effect in physics; and by taking care that the circumstances of the experiment be such, that every spectator may judge with certainty of the result, without there being occasion to make any appeal to the thoughts or consciousness, that is, to the judgement, candour, and veracity, of the person on whom the experiment is made.

It would likewise be very desirable that the circumstances of the experiment were made such as to exclude the possibility of framing new *hypotheses*, to account for and explain away the result, to whichever of the sides it may appear unfavourable. This, however, I believe, it is in vain to look for: the power of conjecture and imagination in such cases is very great; and that of vague and ambiguous words knows no bounds. Any person who may chuse to exercise his ingenuity in arguing against an obvious fact, or in trying to explain it away, will easily contrive *hypotheses* for his

purpose; and if these are expressed in vague and ambiguous terms, it must be a work of time and labour at best, or perhaps impossible, either to understand or to refute them.

With respect to the two first points required in the subject of experiment, that it be one wherein the result is not the same according to the doctrine of Necessity, and according to the popular notion of the relation of motive and action with independent activity or liberty in the agent; and that it neither require nor admit of any appeal to the consciousness of the person; which are the most important circumstances; they may easily be accomplished with the help of mathematical reasoning: but without this assistance, and by reasoning only in vague and ambiguous terms, I doubt much whether it would be possible ever to attain that precision which is absolutely necessary in deducing from the principles maintained, without regard to any other means of knowledge, such inferences as may be brought

brought to the test of open and unequivocal experiment.

As to the other point, the contriving of *hypotheses* to explain away an evident experiment or matter of fact, or to account for its being diametrically opposite to what it should have been according to the doctrine maintained, though this cannot be prevented, it may be so guarded against, that such *hypotheses* can never produce any difficulty or embarrassment.

For this purpose, I think the two following considerations may be sufficient. In the first place, let it be remembered, that a new *hypothesis*, contrived to account for the falsity of a necessary inference of an old one, and to explain away an obvious matter of fact, in order to avoid giving up a favourite opinion, is in the highest degree unphilosophical, and in strict propriety of scientific reasoning, is not intitled to any regard or attention. In the second place, let it be considered by those even who wish to shew every possible indulgence to such *hypotheses*, that they
may

may easily be brought to the test of experiment. For the conclusion which it is proposed to try experimentally must be a strictly necessary inference from the principles of the absolute irresistible force of motives, (though these may be separated from their respective actions, in such a manner that only the strongest of two opposing motives shall be followed by its proper action), and of the incapacity of a person to act without a motive, as well as of the impossibility of a body resisting or preventing the change or effect corresponding to any cause applied to it, or ever changing without a cause; and this without any regard to any of the other real or supposed attributes, either of mind or body; of living persons or of inanimate matter. Consequently the conclusion must either be true, both with respect to the relation of motive and action and that of cause and effect in physics; or it must be false with respect to both these relations, if those two principles take place in both; just as all the properties of a plane triangle are equally true of equilateral, isosceles, or scalene triangles; or as
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in an equilateral, as well as in an isosceles triangle, the two angles at the base are equal to one another. And if any person thinks he can assign a reason, consistent with the principles just now specified, for the conclusion not being true in the case of motive and action, we may know at once, by the easiest and simplest test that can be conceived, whether the reason proposed be just and solid, or a mere jargon of ambiguous words, such as have long abounded on this subject; and this too without arguing about it even for a moment. We need only try whether it applies to the corresponding case of the relation of cause and effect in physics. If it does not, and if the conclusion be found true in the latter relation, and false in the former, there *must* be a difference between them, with respect to those very principles from which the conclusion in question was deduced as a strictly necessary inference.

A case or instance of the application of a motive, having all the conditions requisite for my present purpose, may, I think, be

be fairly and demonstrably got at in the following manner.

Let two great equal opposite motives be applied to a person at the same time. In such a case, according to the doctrine of Necessity, the person must remain inactive, having nothing to determine him, and being unable to determine himself to act according to one of the equal motives, rather than according to the other. This conclusion, however, is not verified by experiment; the direct contrary almost universally taking place. But this is easily accounted for, and reconciled to the doctrine of Necessity, by *supposing* that the person either discovered, or at least fancied, some additional motive on one side or the other. Though this is a mere gratuitous hypothesis, contrived to explain away an obvious fact, and therefore unworthy of any regard; yet, for reasons already mentioned, it shall be allowed to pass unquestioned. Nay, in order to make the argument as simple and unequivocal as possible, we shall consider the case of a real additional motive, though a small one, being applied on one side. And for the
sake

fake of easy commensurableness, we shall suppose this small additional motive to be of the same kind with the great original opposite motives ; for instance, the offer of money. But in this case it is plain, that the opposite motives are no longer equal ; and, according to the doctrine of Necessity, that one with which the small additional motive concurs *must* prevail. Now, it is an axiom of geometry, hitherto unquestioned, That if from unequals equals be deducted, the remainders *must* be unequal ; and it may be added, that the difference between the remainders *must* be as great as that between the whole quantities had been. Let then the equal motives, that is, the great original opposing motives, be withdrawn at once from both sides, as soon as the person has felt the influence of the minute additional motive, and made his choice accordingly : and let all the circumstances of the case, and above all the doctrine of Necessity, be duly explained to him : he *must* immediately perceive, that the motive which determined his choice remains entire, unopposed, and consequently in full force ; and he *must* accor-

dingly do the action required as certainly for that small motive as he would have done it for the corresponding great motive applied by itself, or for the small and great one together. For all motives being, as to him, irresistible, any motive applied, and unopposed, *must* be followed by that volition, choice, determination, and action, to which it prompts.

This case, and the mode of reasoning employed in arguing it, may be fully illustrated by the use of a very simple diagram, and by means of algebraical and even arithmetical notation; as, for example, in the following manner.

$$\underline{Z = 2} \quad \underline{X = 100} \quad \underline{Y = 100}$$

Let X and Y represent the forces of two equal opposite motives applied at once to the same person. Each of these forces we shall suppose equal to 100. According to the doctrine of Necessity, however modified, the person in such a situation *cannot* act according to either motive applied, and *cannot* act without a motive; and therefore, if no other motive is applied to him,

must

must remain inactive. But the contrary result is *always observed* on trial, nay, is *always foreseen* before any trial is made. This is accounted for, according to the doctrine of Necessity, by *supposing* that some additional motive, however slight, is *always* found or fancied on one side or the other. Let this *supposition* be admitted, and let Z represent the force of this small additional motive; which we must conceive to be much less than X or Y, and for the sake of easy calculation, we shall state as only equal to 2; and shall admit that it concurs with X, in opposition to Y. Then, no doubt, according to the doctrine of Necessity, as now modified, $X + Z$ being equal to 102, *must* be more than Y, which is but 100, and accordingly *must* prevail, and have their full effect, as if Y were not applied. But then it follows necessarily, that if the two great opposing motives of equal force be withdrawn at the same time, there *must* remain the additional motive $Z = 2$ on one side, and unopposed, (for aught that yet appears); which therefore *must* have its full effect, and be followed by the action to

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which

which it prompts, as certainly as X would be if it were applied singly. But this very plain and strictly necessary inference, though evidently possible, and perfectly analogous to what is known to take place universally with respect to causes and effects in lifeless bodies, I presume will not be admitted as in the smallest degree probable, or as even worthy to be tried experimentally; and a new *supposition* will immediately be contrived to account for that necessary inference from the doctrine not being true as a matter of fact, and for those who profess their belief in the doctrine not even expecting it to prove true.

It will be *supposed*, (and not altogether without reason), that the motives mentioned, the forces of which are denoted respectively by X, Y, and Z, are not the only motives applied to the person; that he *must* be conceived to be at the same time under the influence of some other motives, of a peculiar kind, and differing from the others in this respect, that they are not motives to action, but motives, reasons, or inducements, to remain inactive;

tive; as, for instance, laziness, aversion to labour of any kind, the pleasures of idleness, the advantage that may be expected by remaining inactive, or at least by not acting either according to X or according to Y, &c. Such motives or considerations may well be supposed to have great influence with a person. They cannot indeed be supposed to concur with either X or Y in prompting to any action; but they may oppose either or both of them: they will always oppose that one which is likely to prevail; as, for example, X, when Z concurs with it; and in such a case will concur with Y to that precise effect, and no more.

This *supposition* well deserves attention; for it is in one respect just; there are such motives, or principles of choice or determination, which may have influence; that is, according to which a person may reasonably be conceived to regulate his conduct. But even these motives have no absolute force as *causes* of choice, volition, or determination in the person, independent of his self-governing power.

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And the *supposition* of their influence by no means takes away the objection to the doctrine of Necessity founded on the palpable falsity of the last necessary inference from it, but only removes it one very short step; and at the same time gives us an opportunity, by means of strict mathematical reasoning, to shew more clearly than has yet been done, that the notion of the supposed absolute force of motives, is completely nugatory.

According to this last supposition, the former expression and diagram were incomplete; and an important addition must be made to them, to express the supposed force of these peculiar motives for remaining inactive; which always oppose action, and concur with any other motive that does so. The force of any single motive of that kind, or of any number of such motives concurring, may be represented by $\underline{V=m}$; and the diagram, when completed according to this supposition, will be as follows.

$$Z = 2$$

$$\underline{Z = 2}$$

$$\underline{X = 100}$$

$$\underline{Y = 100}$$

$$\underline{V = m}$$

The proportion of V to X , Y , and Z , we cannot know, and therefore I state it as equal to m ; but we know that V *must* either be equal to Z , or greater than Z , or less than Z .

If V be equal to Z , then as X is equal to Y , $X + Z$ *must* be equal to $Y + V$. According to the arithmetical illustration given, each sum would be 102; and the force of the motives on each side being thus equal, according to the doctrine in question, the person *must* remain inactive, just as he *must* have done if only X and Y had been applied, or as he *must* have done if no motives at all had been applied to him.

If V be greater than Z , (for example, if it be supposed equal to 3, while Z is but 2), $X + Z = 102$ *must* be less than $Y + V = 103$, and never *can* prevail over them, any more than Z could do over Y ; and
therefore

therefore the person must still remain inactive.

If V be less than Z, (for example, equal to 1 while Z is equal to 2), then, no doubt, $X + Z = 102$ must be greater than $Y + V = 101$, and must prevail over these, and the person must act accordingly: but then let both X and Y be taken away, that is to say, the equals from the unequals, and the remainders must still be unequal, and the person, according to the doctrine of Necessity, however modified, must act as he is prompted by Z, just as completely as if V were not applied, or as he must do if $X + Z$ (unopposed), or X (singly), were applied to him. But, according to the *interpretation* of every part of the experiment, V must be less than Z; for X and Y are equal, and $X + Z$ was found to be greater than $Y + V$.

Therefore, if the doctrine of Necessity, however modified, be just; that is, if there be in motives any absolute force or strength in determining the will or choice of a person, or any such relation between
 them

them and the volitions and actions of mankind, that volition and action *come to pass* in consequence of them, independently of any self-governing power in the agent, or any capacity in him of resisting them; just as changes in lifeless bodies come to pass on the application of their respective causes, independently of any self-governing power in the subject; a person *must* infallibly do, for any the most trivial motive, which added to any great one that was balanced by an equal opposite motive, was sufficient to turn the balance, and determine the will, precisely what he *must* have done for that great motive, either applied by itself, or applied along with an equal opposite motive, and that concurrent trivial motive.

Those who have been accustomed to assert their belief in the doctrine of Necessity, may consider here, before they proceed to particular instances, whether this important general inference coincides with *their* notion of the relation of motive and action, of the absolute and irresistible force of motives like that of physical causes, and

with *their* experience of the general character and conduct of mankind. They will not surely, nor *can* they consistently with the character of men of sense, and men of science, and men of veracity, refuse their assent to so plain and obvious a conclusion, without *first* pointing out some error in the very short chain of simple mathematical reasoning, by which it is deduced *necessarily* from their own fundamental principle.

Nay, if there were occasion to reason on such a subject with men incapable of understanding any kind of mathematical reasoning, or having an insuperable dislike and distrust of such an application of mathematics, the conclusion which I propose to try experimentally might be explained and proved to them by physical illustration, with a degree of evidence and clearness little inferior to that of mathematical demonstration; and yet of such a kind that men of no more knowledge or understanding than we may reasonably expect to meet with in common porters, should fully and easily apprehend it, and
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see the force of it, as necessarily following from the principles asserted.

For this purpose, I should require no other instrument but our old, though very unworthy representative, the common balance.

Let us suppose any number of porters to be desired to attend carefully to the nature, and structure, and various motions, of a balance; to try it as often as they pleased, and in every way that they could think of; and let us suppose, that, after due attention on their part, and many careful trials of the balance, such questions as the following should be put to them severally.

1. Whether they believe that the balance can turn of itself, with nothing in either scale?

2. Whether they believe it can prevent itself from turning, or in any way fail to turn, when a certain weight is put into

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one

one of the scales, and nothing into the other?

3. Whether they believe it can turn either way, with just one pound, or just one hundred pounds, in each scale?

4. Whether they believe it will remain even, with an hundred pounds in one scale, and an hundred and one pounds in the other?

5. Whether they believe it will turn to that side where the greater weight was put?

6. Whether they believe it will turn to the same side, if an hundred pounds were taken out of each scale, and one pound only left in that scale in which it had originally been put?

It cannot be necessary to say, that experiments such as these have been tried with balances times without number; that the result of every one of them is invariable; and that it is universally known,
and

and foreseen before the trial. I will venture to say, that if any porter were seriously to answer in the affirmative to any of the three first questions, or in the negative to any of the three last questions, he would instantly be pronounced insane, as well by his own rude and ignorant brethren, as by the most intelligent and enlightened of mankind.

Next, let us suppose a company of merchants, all of them men of sense, and of liberal education, and of extensive knowledge, and of fair character in all their dealings, to be provided with a balance to all appearance of a very different construction, and made of very different materials from those which we are accustomed to use; that ordinary people suspect it not to be a fair one, and alledge that in it sometimes the greater, sometimes the smaller weight preponderated; that when equal weights were put into the opposite scales, one of them always preponderated over the other; that they positively charge the merchants with having some secret way of turning the balance as they pleased,

fed, or having some person, though unseen, to do it for them; and at last refuse to deal with them, in the way of buying or selling, by such a balance, unless they will allow it to be fairly examined.

We shall suppose the merchants to treat all such opinions and suspicions with contempt and indignation; to laugh at the opinion, that any balance, or any thing whatever, could turn itself, as a palpable absurdity, equivalent to saying that there might be an effect without a cause; and to speak of the suspicions of their honesty as the vile suggestions of ignorance, envy, and malevolence; but yet, in order to satisfy the world, to shew, by a thousand instances, that in their balance the heaviest scale always went down, and that the suspected balance was even so nice, and of so peculiar a construction, (friction in it being almost annihilated, and the centre of gravity of the whole machine, even when loaded, coinciding with the centre of motion), that it would turn completely from the horizontal to the vertical direction, with the smallest difference of weight;

weight; as for instance, with a single ounce, or with a single grain, when there were 1000 lbs in each scale.

Their customers we shall suppose not yet to be quite satisfied, and, with the consent and approbation of all the merchants, to try the experiment of putting 1000 lbs, carefully weighed, into each scale: it is found, that one scale not only preponderates, but goes down as fast, and as far, as it would have done if there had been nothing in the opposite scale. The vulgar are astonished, but the merchants are not in the least disconcerted. They immediately examine the descending scale, (without ever looking at the other), and shew, that there is in it, or about it, a small quantity of dust, which they reckon may weigh a grain or more; and they had already warned their customers, that the balance was so nice as to turn completely with a single grain, or even less. The spectators immediately propose to ascertain this point, and along with it the justness of the balance, by taking out the 1000 lbs from each scale, and attending

ing to the result. But the merchants will not listen to such a proposal: they say it is absurd and foolish; and that it is treating them like children to appeal to such an experiment; and, lastly, we shall suppose, that, notwithstanding all their remonstrances, the experiment proposed by their customers is tried; and that, on taking out the 1000 pounds from each scale, the balance immediately becomes and remains perfectly even.

What should we think of such a balance, and of such merchants?

For my own part, I have not the smallest scruple to give it as my opinion, that if ever such a case occurred, all mankind who were fit to judge of it would agree in their sentiments on the two following points: First, That the pretended balance was not a balance; that the turn of it was not produced or determined merely by the weights put into the scales, but that there was in the machine, or at least somehow connected with it, some other principle from which the turn of it proceeded, either

ther wholly or partly: Secondly, That the merchants themselves knew this perfectly well, and were acting *mala fide* in all that they said or did about their balance.

Philosophers who have maintained the doctrine of Necessity as consisting in the total want of any self-governing power in persons, and the irresistible influence of motives; and who have asserted the perfect analogy between the relation of motive and action, and that of cause and effect in physics; and who have insisted on the illustration of their doctrine, from the comparison of the balance as affording the fullest proof of their system, and the best explanation of their meaning, as Dr PRIESTLY has done in the strongest terms *; must consider maturely what they are doing before they venture to deny the conclusion at present in question, unless they can point out an error in the reasoning by which it is deduced from

* Vol. 1. p. 11. 12.; vol. 2. p. 24. 25.

their own principles, and at the same time explain how it comes to pass that a conclusion necessarily deduced from certain principles should be always false in some cases, and always true in others, the principles remaining the same in all: both which things I conceive to be impossible.

To deny the conclusion, (p. 432.-3.) without shewing an error in the short and simple reasoning that leads to it, would be equivalent to a renunciation of all pretensions to the use of reason, at least in scientific investigations. To doubt of the truth of the result as a matter of fact when tried with the balance, would be such wonderful ignorance of a well-known fact, as could not be believed of any set of men, but especially of men well acquainted with the nature of the balance. To admit the conclusion with respect to the balance, and yet deny it with respect to the voluntary actions of persons, still asserting the same principles, to wit, the *inertia* of the subject, and the irresistible influence of motives as well as of causes, would

would be still worfe: it would bring into question their veracity as well as their understanding.

I apprehend, therefore, that those alone can expect credit for their sincerity in the belief which they have professed of the doctrine of Necessity, who admit my conclusion, and agree to try it experimentally.

After all, my conclusion is no more than what, if it had been expressed in general terms, without their knowing in what cases it might be tried, or by what means the comparative force of the opposite motives was to be ascertained before the last trial of them, every orthodox Necessarian would have admitted; as in fact many of them have done. None of them surely would ever think of disputing that a person would or *must* act according to the strongest of opposite motives; and that such motives would commonly have their full effect as if unopposed.

Nay, if particular cases were stated, of such a nature that no appeal could be

made to open experiment with respect to the result in them, and every person would be left to judge for himself what the result would have been, I have strong reasons (from analogy) to believe, that my conclusion would be admitted by every assertor of the doctrine of Necessity.

I shall state, first, one of the simplest cases of this kind; in which the alternative is merely that of acting in a particular manner, or not acting in that manner, that is, remaining inactive. It is the case expressed mathematically by $Z - V$, (diagram, p. 431.): it corresponds in general physics to the case of a body under the influence of a force or cause of motion, which is at the same time opposed by friction; and with respect to the balance, if it be chosen as the subject of illustration, the corresponding case will be a weight put into one scale, and nothing left in the other. I presume there can be no doubt, that if the force applied be less than the resistance, or only equal to it, the body, or the balance, will remain at rest; but that, if the force be greater than the resistance,

ance, the body will move, or the balance will turn, according to the force or the weight applied.

Innumerable examples of the corresponding case of the application of motives may easily be found: I take the two first which occur, as they are both of such a kind that the truth of the conclusion cannot be tried experimentally; so that every person is left to judge what it would be, from his own preconceived notion of the relation of motive and action, and of the absolute force or influence of motives.—*Cæsar* had to choose whether he should or should not pass the *Rubicon*; that is, begin or not begin a bloody and calamitous civil war: *Cato* had to choose whether he should kill himself or not. We know what each of them did; we conceive that they had powerful motives for not doing so, but still more powerful motives for doing what they did. It is conceivable, that the opposite motives in them respectively might have been equal, or that the contrary motives might have been the stronger; and in either case it will be admitted, on the principle

principle of the doctrine of Necessity, that *Cæsar* would not have passed the *Rubicon*, and that *Cato* would not have killed himself: but the motives on one side preponderating, they could not avoid choosing as they did. Now, let us suppose the motives to inaction in both cases to have been completely withdrawn, and at the same time an equal portion in point of force or influence to have been withdrawn from the motives to action, and of course the original difference on this side, or any force of motive, however minute, to have been left unopposed; must we conceive, that *Cæsar* and *Cato* would have acted as they did for such a small motive, just as a balance will turn, or a body will move, in the corresponding circumstances?

Next, I shall consider a different, but equally simple case, of the opposition of motives prompting to inconsistent actions, but where there can be no motive, or at least none of any sensible influence, for remaining inactive. This case is expressed by the diagram, p. 426. or by the algebraical formula $X + Z - Y$; and corresponds

sponds to the situation of a body in free space, but under the influence of two opposite forces or causes of motion, and to the state of the balance, (as nearly as the structure of that instrument with respect to friction, and to the place of its centre of gravity, will permit), when weights are put into both scales. Let us suppose a truly honest freeholder to be solicited by two candidates for his vote, which he can give for only one of them; let us suppose that he wishes equally well to them both, and believes them equally deserving of the honour and the trust of which they are ambitious. If these considerations or motives are precisely of equal force, it will no doubt be admitted, that he *can* vote for neither of them. Let us next suppose, that he has the additional motive of gratitude in favour of one of the candidates, as having formerly received favours from him. It will be admitted, I presume, that this additional motive must turn the balance, and make him vote for his benefactor. Next, let us suppose, that he has no other motive whatever for voting for either of the candidates, but merely his
gratitude

gratitude to one of them, neither of them being men of any peculiar merit. As there is no motive for refusing to vote, but a strong one against such conduct, which would disoblige two men; and as there is a motive for voting for one of them, and none for voting for the other, I presume it will be admitted, that he *must* vote or act according to that motive.

Now, if this be human nature, it must be equally the case in honest and in knavish voters; and I think it may be tried experimentally in the following manner. Let two persons solicit at the same time, but each for himself separately, the vote of some worthy burghers of some rotten borough, which vote can be given for only one of them: Let the solicitations be properly made by the offer of an equal bribe from each candidate.

The worthy burghers, as he cannot vote for both of them, must either refuse his vote to both, or promise it to one of them. If he refuses it to both, let one of them
offer

offer him a very small additional bribe. He must then promise his vote to the candidate who does so. But whenever he has made his choice, and given his promise, whether from the consideration of an additional bribe, or of some other motive, not discoverable, on one side, then let the equal bribes or motives on both sides be withdrawn. There will then remain the additional motive (the influence or efficacy of which is already ascertained) for giving his vote to one of the candidates, either absolutely unopposed, or opposed only by some inconceivable reason for not voting at all; which consideration, by the previous steps of the experiment, is already ascertained to be less in force or influence than the motive which is now left for voting on one side. Will he vote accordingly, or not? If he does, it is plain that a practical and æconomical use, of great importance in all free governments, may be made of this principle of human nature, which I claim the sole merit of discovering.

Lastly, I shall consider the case where

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the motives for not acting in either of the ways required are very great, almost or perfectly equal to either of the great motives which oppose one another, and infinitely greater than the minute additional motive which is found to turn the balance. This is in truth a very common case; it occurs in every example of a sale by auction, where there are two bidders for the thing to be sold. It corresponds to the case of a body under the influence of two very great opposite forces, one of which is but very little greater than the other, and where there is also much resistance, from friction or other sources, to the motion of the body in the direction of either of the forces. And it corresponds to the case of a balance having much friction, the centre of gravity very low, and great weights very nearly equal in both scales.

If a man be offered L. 50 for a horse, or L. 50,000 for an estate, which he is willing to sell for an adequate price, but not absolutely obliged to sell at any price that he can get; and if he is convinced that the
prices

prices offered for his horse and for his estate, respectively, are fully adequate, it is to be supposed he will conclude the bargain. But if he have the same offer from two different persons, it must be conceived, that he could not sell his horse or his estate to either of them, for want of a motive to determine his choice. But then let a single guinea more be offered on either side, and the balance will be no longer even, and his choice must be determined on that side. Then let the great equal offers on each side be withdrawn at once, and only the offer of the guinea on one side be left, that it may appear whether it will turn the balance or not, in spite of the value the man may be supposed to set on his property; just as a balance will turn with any small weight put in either scale, with which it had turned when both scales were greatly loaded; or as a great weight may be dragged on the ground by any force that was sufficient to drag it in that direction, along with a much greater, which was opposed by one equal to itself.

All these cases I have considered with a

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degree

degree of minuteness which will probably appear tedious and unnecessary: the object of it is to show, in the strongest possible light, the difference between the notion as well as the reality of *being done for the sake of a motive*, and barely coming to pass in consequence of a *physical cause*; and to point out the extravagant and ridiculous absurdity, or at least incongruity with the *universal* notion of mankind, whether philosophers or vulgar men, that results, even before any experiment can be made, from supposing the voluntary determinations and actions of men to come to pass on the application of motives, as physical effects do on the application of their causes, without any self-governing power in persons, any more than in lifeless bodies, or any means of preventing the influence of the motives, any more than of the physical causes applied. I do not, however, make any appeal to consciousness on this point: I state the necessary consequences of the supposition of such influence of motives; and leave to those who may think it necessary the labour

bour of trying those inferences experimentally.

It may be proper to mention that these inferences are equally necessary on the supposition of the constant conjunction as on that of the occasional and separable conjunction of motive and action: they are deduced from the supposition of the absolute irresistible force or influence of motives.

It must be observed, too, that as they do not in any degree depend on the supposed immediateness or remoteness either of the constant conjunction or of the irresistible influence of motives, they cannot be set aside by any supposition concerning the number or the nature of the intermediate steps between the first application of them and the ultimate visible result in action. Just as in the case of the balance, or of any lifeless body, there may be any supposeable number of links or steps between the cause and the effect; still, however, if the conjunction at every step be constant, that of the first with
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the last *must* be so too : if the influence at every step be irresistible, that of the first on the last *must* be so too *.——To mention the various circumstances of apprehension, judgement, will, effort, thought of every kind, which are peculiar to persons, and which may be conceived to account for the difference in the case of persons and in that of lifeless bodies, requires, in the first place, some appeals to consciousness; and, in the second place, implies the use of many vague and ambiguous terms; and, lastly, it is in fact, though not in words, an acknowledgement that the conjunction of motive and action is not constant, but occasionally separable; and a specification of the steps of the process, or series of events, where the conjunction in question is broken, where the influence of motives is found not to be irresistible, and where the aid of another principle of change is required.

Supposing that all these inferences which I have drawn from the principle of the

* Vide p. 84. 85, 86. 232. 233.

inertia of mind as well as of body, and the irresistible influence of motives, as well as of physical causes, first on the supposition of the *constant conjunction*, secondly on the supposition of the *occasional and separable conjunction* of cause and effect, and of motive and action, are strictly necessary consequences of that principle; it must, I think, be admitted, that they have all the other qualities and conditions which are specified, Sect. IV. p. 128. and 129. to which I here beg leave to refer, as it is needless to repeat what is there stated so particularly; and I trust they will be thought by every attentive and candid reasoner to justify and establish the propositions asserted p. 125. 126. 127. and 130. 131. 132. concerning the import of the notion of motive, or “that for the sake
“ of which,” and the universality of that notion among philosophers as well as the vulgar, and its being indefeasible even in those who professed to have no belief and scarce a notion of that principle of change, the self-governing power of persons, which appears to be always implied in the notion of motive.

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If any person can shew that my supposed necessary inferences from that principle are really not so, I shall frankly give up my argument, and acknowledge his superiority in reasoning; though I own I cannot alter my opinion as to the ultimate point at issue, which appears to me a self-evident truth, which nothing but vague analogical reasoning, and the careless use of ambiguous terms, could ever have brought into question.

If, contrary to my expectation, any assertors of the doctrine of Necessity shall admit my seemingly necessary inferences from their own principle, as appearing to them true, or at least highly probable, with respect to living persons as well as with respect to lifeless bodies; and if it shall appear, that their actual conduct in similar circumstances has corresponded to such admission, and to my inferences, I shall with much pleasure acknowledge their candour and sincerity in their reasonings, and their professions of belief, and shall be glad to see the truth of their principle,

principle, and of my inferences from it, fairly ascertained by experiment.

But if any of them, without pointing out any such error in my reasonings as may shew that my inferences are not necessary consequences from the principle asserted, shall deny those inferences, and still hold fast the principle, I *must* consider them as so strangely deficient in the faculty of reasoning, as to be incapable of any scientific investigation; and if they admit the inferences with respect to lifeless bodies, which implies that they understand them, and see the force of the reasonings which lead to them, and yet deny them with respect to living persons, still asserting with respect to both that simple principle from which alone, without regard to any other circumstance or property either of mind or body, those inferences are drawn, then I *must* consider them as so deficient in candour and sincerity as to be unfit to be reasoned with.

S E C T. XXII.

Summary of the Dilemma.—Ultimate conclusion of the argument with respect to the general nature of the difference between the relation of Motive and Action and that of Cause and Effect in Physics.—Reasons for not attempting in this Essay the investigation of the particulars relating to the Self-governing Power in Persons.—Impossibility of doing it without appealing to Consciousness and Common Sense.

THE relation of motive and action has now been considered on two directly contrary suppositions, one or other of which *must* be true. It *must* be either a *constant conjunction*, as that of cause and effect in physics seems to be, or it must be an occasional and separable conjunction.

Each

Each of these suppositions has been considered along with the fundamental principle of the doctrine of Necessity, namely, that the influence of motives is irresistible, like that of physical causes; and that there is no self-governing power in living persons, any more than in lifeless bodies.

Both those suppositions with respect to the relation of motive and action, taken along with that principle, imply various necessary consequences, some of which are false, and others absurd.

Therefore that principle *must* be false.

But the direct contrary of what is false *must* be true.

The direct contrary of that principle is, that the influence of motives is not irresistible; and that there is in living persons a certain self-governing power: and this *must* be true. Which was to be demonstrated.

It will be observed, that in the preceding argument care has been taken to consider only the original motives, or first principles of action, applied to a person in any case, and the ultimate visible result or overt act proceeding from them; without regard to any intervening circumstances, such as the process of thought, which we know to be interposed between the motive applied and the overt act consequent upon it. Various steps in the intervening process of thought may be distinctly conceived and specified, such as apprehension, desire, judgement, choice, preference, will, effort, and possibly many others, for which it is not easy to find unexceptionable, that is, unambiguous names. It would be natural and reasonable to inquire in which of these steps, or in how many of them, the exertion of the self governing power is required. Nor would there be any difficulty in answering such

such questions, if appeals to consciousness and to common sense were admissible; which here they are not, both as being fruitless, and as being inconsistent with the plan of this Essay. Besides, many of the terms expressing those operations of thought are so vague and ambiguous, as almost certainly to perplex and frustrate any reasonings in which they are employed. Nor is it necessary for the purpose of this Essay to enter into such discussions. It appears by the unequivocal result, the overt act, that the exertion of the self-governing power is interposed between the motive applied and the action following upon it, and referred to it.

Nay, if any person should choose, as some philosophers seem inclined to do, in defiance of the common and the proper usage of language, to employ the term *Motive* to denote, not merely the principle of action, such as appetite, passion, desire, &c. usually called the motive, but all the circumstances preceding the overt act, it would make no difference with respect to my conclusion: for it would appear,

pear, that in that mass or series of things and thoughts, confounded together under one name, there were both the principle of action, commonly called the Motive, and the exertion of the self-governing power subsequent to it, and preceding and essentially necessary to such overt actions as men usually perform. For though the power of words be very great, in confounding our reasonings and frustrating our researches, it has no influence at all on the things about which we reason; nor does it even prevent us from perceiving their properties and their relations, if, without regard to the words which we employ, we attend strictly to the things themselves.

Though I will not, any person who chooses, and who has sufficient confidence in his own power of reflection on his thoughts, and in his own candour on this subject, may easily apply my dilemma, and my mathematical reasoning, to any step of the process of thought which intervenes between the motives applied and the overt act produced; for example, to the judgement, choice, or will of the person

son acting; and he will soon find, that in the very notion of some of them there is implied the separability, and the very frequent separation, of some of the motives or supposed causes from their supposed effects; and in others of them, a very different relation from that of irresistible influence of the supposed causes, or the supposed effect simply coming to pass on the application of the motives. And, instead of the analogy of the motion of a lifeless body, which corresponds or contrasts so well with the voluntary movement of a person, he may take, for the first part of the Dilemma, the perception of colour; which perception is a mere modification of thought, as much as judgement, will, or choice; but which being involuntary, comes to pass irresistibly, on the application of its exciting cause or causes: and for the second part of the Dilemma, he will have at hand the familiar analogy of the balance. And if he reasons strictly, and observes attentively, he will perceive the difference between the turn of a balance from the weights put into the scales, and the choice, judgement, or will of a person,

son, from motives applied to him, as well as that between the same turn of a balance and the overt act of a person.

The self-governing power of persons, the reality of which I conceive to be demonstrated on physical and mathematical principles in this Essay, appears to me a curious and important principle in human nature, and one that well deserves particular investigation. Though many philosophers have thought fit to deny the existence of it, yet it has not altogether escaped the attention either of philosophers or of the vulgar : it is well known in common language by the name of *FORCE OF MIND*; a phrase which I find is used in the very same sense by mankind in general, and by the assertors of the doctrine of Necessity; as appears by the instances to which they apply it, and by their never falling into cross purposes or misunderstanding in their conversation when they use it. Many just and interesting observations concerning it may easily be collected, by accurate observation of the characters and conduct of men, and from
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the writings of poets, historians, and philosophers. Such observations, properly arranged, will lead us gradually to a more distinct and accurate knowledge of its nature. We may become acquainted with its varieties and its modifications, and with some of the causes of these; we may find what share it has in all the operations of thought, somewhat even in sensation, more in judgement, in memory, in imagination, in reasoning, in the common conduct of life, in virtue, and in vice. We may find it to be one of the most valuable possessions that man enjoys, and one that by his own management he may improve, or debase, or almost lose. We may find the knowledge of this power subservient to the investigation of the nature of other principles of change, which it is the object of philosophy to ascertain. But as this investigation cannot be conducted on physical and mathematical principles, I must not enter on it here; but it may be the subject of another Essay.

the things of sense, history, and philosophy. Each observation, properly made, will lead us gradually to a more and more accurate knowledge of its nature. We may become acquainted with its principles and its modifications, and with some of the causes of them; we may find what there is in all the operations of thought, somewhat even in sensation, more in judgment, in memory, in imagination, in reasoning, in the common conduct of life, in virtue, and in vice. We may find it to be one of the most valuable possessions that man enjoys, and we may find by its own management he may improve, or degenerate, or almost lose it. We may find it is the subject of the power of the mind, and the investigation of its nature is the object of philosophy to a certain degree. But this investigation cannot be conducted on physical and mathematical principles, and will not rest on it here; but it may be the subject of another Essay.

A P P E N D I X:

CONTAINING

*Objections made to the preceding Essay, and
Answers to them.*

VERBA GIGNUNT VERBA.

Bacon.

“ **I** Communicated this Essay to a friend that I knew had early imbibed the principles of the Necessitarians, requesting him to give me his opinion of it. He sent me the following remarks, numbered at my desire, and gave me leave to do as I pleased with them. But he requested that

I should not publish his name ; because he did not think either the observations or himself of such consequence as that there could be any propriety in announcing their author.

1. I believe the doctrine of the Necessitarians is, That human actions, or the acts of the will which prompt them, depend as much as any other events on causes ; and that these causes are to be found in the nature of the mind, and in those perceptions, sentiments, and opinions, which arise in it.

2. The physical constitution of the mind, on which its existence, and the performance of its operations, depend, must naturally be supposed to contain the proper physical cause or causes of the acts of the will, as well as of every other mental operation : For I think we cannot conceive a change to take place in any substance, without supposing that there is a physical cause for it in the nature of the substance. But this constitution we have no faculties for examining. The perceptible operations

tions of the mind, however, or the processes of thought which attend on volition, may be considered as exciting causes of the acts of the will. If there is any thing contingent in these processes of thought, or if the acts of the will are not constantly conjoined with them, it is evident, that however constantly conjoined the acts of the will be with their proper physical cause, if that physical cause is only attended with its effect when stimulated by something contingent, the doctrine of the Necessitarians must be erroneous. If, on the other hand, processes or trains of thought are constantly conjoined with the acts of the will, and there is nothing contingent in those trains of thought, it appears to me, that the doctrine of the Necessitarians must be well founded; as, in that case, the relation of constant conjunction must take place between the acts of the will and trains of thought which invariably precede them.

3. It has been hitherto thought by the Necessitarians, that every volition is very obviously the result of a train of thought; and

and that the relation of constant conjunction is very perceptible in such trains of thought, at least as far as it is necessary to trace back the steps of them. I understand the object of the Essay is, to show, in the following manner, that absurdities result from this hypothesis. The doctrine of the Necessitarians is supposed to be, That every apprehension and desire of attainable good, or, in the language of the Essay, every motive, is attended with an influence on the will, commensurate to the intensity of such desire; and then, by having recourse to the known laws of physics, it is proved, that instead of the human actions which do happen, others the most absurd and extravagant would necessarily result from the opposite and combined effects of certain of such motives.

4. But if it can be shown, that, according to the doctrine of the Necessitarians, the will is not, and need not be, exposed to such combinations or oppositions of influences, it seems to me to follow, that
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the argument in the Essay fails in its foundation.

5. The Necessitarians maintain, That the will is invariably determined by the judgement of the understanding, or the last step in the train of thought previous to volition; and that this judgement is involuntary; and that no apprehension and desire of attainable good has any influence on the will, till the understanding decides on its preference, or on the expediency of attempting the pursuit of it. It is therefore a mistake to have supposed, that, according to the Necessitarians, every apprehension and desire of attainable good had a determinate influence on the will. I believe there is no Necessitarian that would require any demonstration or argument to be convinced, that such sentiments occur every day without producing any effect whatever on the will; and that accordingly there is no constant conjunction between them and human actions.

6. Again, I believe it will not admit of dispute, that the decisions of the understanding

standing are involuntary. It seems to be admitted in the Essay, that belief, which is a judgement of the truth or falsehood of a proposition, or of an event, is involuntary; and I can see no reason for doubting, that an opinion of what is preferable, or otherwise, is equally involuntary. The former kind of judgements is indeed more uniform and steady than the latter, which varies according to the state of a person's health, or other circumstances; but there is no reason for esteeming them to be less involuntary than the former.

7. Neither will it admit of dispute, that a judgement will never be pronounced by a person in health, in favour of two pursuits at one and the same time, that are incompatible, or admit only of combinations which are inconsistent with each severally.

8. Unless, therefore, the Necessitarians are under the necessity of admitting, that the involuntary judgement of the understanding is contingent, or proceeds upon

a train of thought, some step of which is contingent, the Essay seems to fail in its object; since, according to the Necessitarians, the act of the will depends on an operation of the understanding, which is itself involuntary, and excludes all those absurd combinations of influence alluded to in N^o 3.

9. The question, therefore, turns on the nature of the operations of the understanding. If the Necessitarians must yield, that every apprehension and desire of attainable good must have an influence on the understanding, in a manner perfectly similar to that of forces in physics, in order to be intitled to maintain, that its operations proceed by immutable laws; and that the relation of constant conjunction takes place among them, the substance of the argument in the Essay would, I think, still remain solid, notwithstanding what has been remarked. It appears, however, to me very clear, that the laws of the operations of the understanding are immutable; that the relation of constant conjunction is universally acknowledged

by mankind to take place among these operations; and that the influence of our desires for attainable good on the decisions of the understanding, respecting the pursuit of them, though as certain and, strictly speaking, uniform as that of forces in physics, is subject to extremely different laws.

10. I imagine all men will acknowledge that a person will form exactly the same judgement to-day, for instance, that he did a twelvemonth ago, if he is circumstanced in precisely the same situation, viz. having perceptions, appetites, expectations, and discernment, perfectly similar to those which he then possessed; and it does not appear to me possible that this persuasion can be otherwise accounted for than from a belief, founded in consciousness, of the immutability of the laws of the operations of the understanding, and of one of those laws being a constant conjunction in the steps of the trains of thought which precede the judgements of the understanding: so that we are sure that similar effects will always result from similar causes
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in the mind, as well as elsewhere; or, if a different mode of expression is preferred, that similar events will ensue in the mind from similar preceding circumstances. We cannot, as I believe an able writer has observed, trace back the rout of the die in the dice-box, and the train of causes and effects by which a particular face of it comes at last to cast up; but we have no doubt of the constant conjunction of the whole from the first impulse it receives, till it settles on the table; and I think we have as little doubt of the same relation pervading the trains of thought that issue in judgements of the understanding; though these trains are too fleeting and various, and the memory too imperfect a faculty, to admit often of our tracing them back with accuracy.

11. The total want of analogy between the influence of our appetites upon the judgement and of forces in physics, appears also to me to be so striking, that it is scarcely requisite to make any remarks upon it. The desire of earning a guinea by going a mile westward, can no more com-

bine with a desire to gain half a guinea by travelling a mile southward, in forming a judgement, that it would be eligible to travel a mile in the diagonal south-westward, than physical forces applied to make a ball move with different directions, south and north, could combine of themselves to make it move to one of these points. The intelligence of the mind renders the combination impossible. At the same time, no man can say but that he is as certain that the porter, if there is no other appetite in the case, will decide upon the preference of travelling the mile westward for the guinea, as that a ball impelled by equal forces southward and westward will move south-westward. If it is asked, What becomes of the effects of the appetite for the half-guinea? I answer, That it has had all the effects that by the immutable laws of the understanding it was fitted to have. It was felt, observed, its inferiority to a desire, the gratification of which was incompatible with it perceived, that gratification judged preferable to it accordingly; and it then probably ceased to exist, and was forgotten. It is not every

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ry train of thought that is constantly conjoined with volition, though volition be constantly conjoined with a previous train of thought; nor is it requisite that every train of thought that might terminate in volition must be prevented from doing so by a spontaneous exertion of a supposed self-governing power: for, independently of these judgements, which I have said involuntarily put a period to them, or at least to our attention to them, we know that any one of a thousand external circumstances may occur, and, either contrary or agreeable to our inclination, monopolise our attention so completely as at once to put an end to any of those trains of thought that formerly engaged us, and might have terminated in action. After turning the subject every way in my mind, I cannot discover the smallest use for a supposition, that a self-governing power was necessary to enable the understanding, possessed as it is of intelligence for perceiving the incompatibility of two pursuits, to judge the one eligible, without absurdly combining it with the other. The sufficiency of the understanding for this operation,

ration, seems to be the natural result of its intelligence, which differences that faculty so infinitely from every thing that is exposed to the influence of physical force; and surely it is not meant in the Essay to prove, that intelligence cannot be subject to the relation of constant conjunction.

12. It is said in the Essay, " That the
" action not always being proportioned to
" the motive, or corresponding to it in
" point of quantity, is equally inconsistent
" with the principle of constant conjunction,
" and with the supposition of
" mere chance, or the want of power in
" the being who acts to allow or to prevent
" the full effect of the motive." This appears to me to be a mistake. Even in physics, an effect may be constantly conjoined with a circumstance, which is in one sense its cause, without being the measure of it. The explosion of a mine of gunpowder cannot measure the quantity of fire that kindled it. The malignity of the small pox is no measure of the quantity or quality of the contagious matter employed to give the disease. The contraction of a
muscle

muscle is no measure of the stimulus applied to produce it. Human actions do not admit of degrees that bear proportions to the degrees of our appetites. I need not make any remarks on the latter part of the passage. I think the involuntary opinion of the understanding always has its full effect on the will.

13. I could have wished that the Essay had contained something more detailed with respect to that self-governing power the existence of which it is the object of it to establish. The terms *option* and *discretion*, which are attributed to this power when acting, as is supposed it often does, without motives, or in opposition to motives, or in opposition to some, and in favour of others, and the character ascribed to it, of being vanquished by appetites or feelings of a certain intensity, leave the reader very much at a loss what to understand by it, and how to discriminate its functions from those of the understanding. One should be apt to think, from some of these terms, that it was a faculty which decided according to reason and argument;

gument; and from the last circumstance, its yielding to feelings of certain intensity, that combinations of these feelings would, according to the doctrine of the Essay, frequently, or at least sometimes, lay men under the necessity of performing actions as absurd as those which are supposed to be the result of the doctrine of the Necessitarians.

14. I have no occasion in these remarks to concern myself with the fact, which possibly may prove to be important, and which I think the Essay establishes, that the relation between cause and effect is different from that between motive and action. It is sufficient for my argument, if a relation subsists between what is involuntary in the train of thought in the mind and the acts of the will, as constant and certain as that of cause and effect.

15. I also acknowledge, that ever since I first studied pneumatology, I have been persuaded, that we truly possess a notion of power derived from the consciousness of our mental efforts; at the same time I
must

must think, that these efforts, or the faculty that makes them, are in general under the direction of the understanding, which again is under the necessity of examining what is suggested for its consideration, and of forming an opinion as to what pursuits appear at the moment most conducive to our happiness.

16. I shall only further observe, that though I may have been unsuccessful in pointing out any defect in the argument in the Essay, my remaining unconvinced by it is some ground of suspicion against it, since I can discover nothing in my situation or sentiments that should lead me to suspect I had imbibed any invincible prejudice against it; and if it is solid, I should think, that, notwithstanding any degree of prejudice, it ought to produce infallibly the same degree and facility of conviction that results from a theorem in geometry. I confess also, it seems to me very clear, that if the acts of the will are not determined by the judgements of the understanding, but by a self-governing power, which *may* act, and, if I recollect

right, is supposed to often act without motives, and in opposition to all motives, the human race, instead of being moral agents, would sometimes at least be more disorderly than any madmen; their manners could be regulated with any degree of certainty by no laws; the prescience of God Almighty could not trace their actions; and even his omnipotence, unless he altered their nature, could do nothing more for them than make a vast bedlam to contain them. I do not assert, that these consequences, even though proved to be just, can impeach the validity of a demonstration; but, on the other hand, I must think, that the apprehension of such consequences is sufficient to justify a suspicion, that there lurks some inaccuracy in it."

Observations

Observations on the preceding Remarks.

IN the preceding remarks, there are many things hard to be understood; some things that may be understood several different ways; some that I cannot understand any way; very few, if any, that I can think strictly fair, or pertinent to my mode of reasoning; and certainly none which I can regard as valid objections to my argument, and supposed demonstration.

It may appear, therefore, a strange deviation from what I have repeatedly mentioned, in the course of my Essay, as my resolution with respect to any such objections that may be made to it, to pay any regard or give any answer to them.

My reasons for this deviation are,

First, That I think myself under such peculiar obligations to the author of the

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remarks,

remarks, for the trouble he has taken in revising my Essay, and for his permission to publish his remarks, that I consider it as my indispensable duty to pay every possible attention and regard to them. And as I cannot say with truth, that I think them just or valid, I have no other way to shew my sense of them, but by giving those answers to them which I think they fairly and easily admit of.

Secondly, I know that though they appear to me of no weight, yet they have appeared just and important, not only to the author of them, but to two other persons, of whose talents, and of whose knowledge in various branches of science, especially in Mathematics and in Physics, I have the highest opinion: it is possible that the remarks may appear equally valid to other people, and that answers to them may therefore be necessary.

Thirdly, As they are almost all of a particular kind, consisting chiefly of vague, obscure, metaphorical, and ambiguous expressions;

pressions; as there are in some of them very needless and unwarrantable innovations or perversions of common language, which tend obviously to perplex our reasonings, but can in no degree alter or affect the nature of the things and relations about which we reason; and as there seems to be in all of them a peculiar study to avoid those strict reasonings by necessary consequences, which alone I have employed, and that complete decision of all questions of fact, which I have recommended, by open unequivocal experiment, without any appeal to consciousness, or to preconceived opinions and common prejudices; I think they afford me a good opportunity of shewing what kind of answers may be given, and ought to be given, to such objections.

It will be observed by every attentive reader, that the paragraphs only, not the remarks or objections contained in them, have been numbered by the author of the remarks; that several different remarks may be found in one number or paragraph; and that the same kind of objection

tion pervades several different paragraphs. To this inaccuracy of arrangement in stating the remarks and objections to my argument, the arrangement of my observations on them, and of my answers to them, must in some measure correspond.

N^o I.

AFTER what I have stated so strongly, and illustrated so fully, in my Essay, concerning the ambiguity of the term *Cause*, as having, both in common language, and in the writing of philosophers, various meanings, some of them more general and comprehensive, others of them more particular and limited, I could not have expected that any person would have given, with a view to strict reasoning, such a vague account of the doctrine of the Necessitarians as is given in the paragraph N^o I.

That paragraph contains nothing *peculiar* to the doctrine of Necessity, nor any thing but what mankind in general, and the

the assertors of the liberty of human actions in particular, myself included, will most readily admit.

As a mere account of the doctrine of Necessity, it is wonderfully *imperfect*: for, according to that doctrine, not only there are *Causes* for all human actions, which *Causes* are to be found in the nature of the mind, and in the sentiments, &c. which arise in it; but, moreover, the relation between the voluntary actions of men and the *Causes* of them, is either precisely, or very nearly, the same with that between the changes which occur in lifeless bodies and the causes of these changes; and, in particular, the relation between those sentiments, &c. commonly called *Motives*, and the voluntary actions of men, is such as to exclude the possibility of any self-governing power in men with respect to their own *actions*, just as much as any self-governing power in lifeless bodies, with respect to the *changes* of which they are susceptible, is made impossible by their nature, and by the irresistible influence of the *causes* of the *changes*.

ges which occur in them. Mr HUME and Dr PRIESTLY, and I believe all the most recent assertors of the doctrine of Necessity, have even specified the peculiar circumstance or relation of *constant conjunction* as subsisting equally between motive and action, and between physical cause and effect, and equally and absolutely excluding the possibility of liberty or self-governing power in living men and in lifeless bodies.—Such was the doctrine of Necessity, either on the supposition of the constant conjunction, or on that of the occasional and separable conjunction of motive and action, (one or other of which suppositions *must* be true), and by no means the vague doctrine expressed in N^o 1. (which may be either true or false, according to the meaning given to the term *Cause*), that I undertook to examine, and to refute by an argument *ad absurdum*.

N^o 1. considered as an introduction to a series of remarks on my Essay, and of objections to it, and of arguments in favour of the doctrine of Necessity, is wonderfully

derfully *uncandid*: for it implies, that the assertors of the liberty of human actions, and that I in particular, have either denied that our actions depend, as other events do, on causes; or at least that we have asserted, that the causes on which they depend are *not to be found* in the nature of the mind, and in those sentiments, &c. which arise in it. Now, the truth is, that we all admit and maintain, that the voluntary actions of men, as much as the ebbing and flowing of the sea, depend on *causes*, that is, on *principles of change*; and that these causes are to be found in the nature of the mind or living person, and in the sentiments, &c. that arise in the mind; which sentiments, as bearing relation to voluntary actions, are called *Motives*. The very plan and object of my Essay has been to shew, by accurate observation and strict reasoning, that our voluntary actions do not depend *entirely* on such sentiments or motives, as the tides do on their physical causes; but that they depend, partly on such sentiments, partly on *something else* in the nature of the mind itself, the nature of which *something else* in the mind I have

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specified;

specified; and have shewn, that nothing analogous to it appears to belong to lifeless bodies, or to have any share in producing those changes which occur in them, constantly and irresistibly, on the application of the physical causes of such changes.

Before I dismiss N^o 1. I must observe, that there is a great impropriety in the expression, "human actions, or the acts of the will which prompt them." These metaphorical and ambiguous expressions ought carefully to be avoided in all reasonings concerning the human mind: they perplex and darken the plainest and clearest thoughts; they encrease the difficulty of a work difficult at any rate; and have on many occasions frustrated the researches of the most acute and enlightened philosophers.

In the present instance, *human actions* are represented as different from the *acts of the will*: the latter are represented as *acting* on the former, *prompting* them; this implies the separate existence of those *actions* and *acts*, and a kind of agency of the
acts

acts upon the actions. This, again, implies a kind of *life* in those *acts*. The *will*, too, seems to be considered as a *Being* separate from the man, and capable of having *acts* of its own; that is, as capable of acting.

I am sure none of these extravagancies were intended by the author of the remark: but his words, taken literally, convey them all; and there is no occasion to use such words. Let it always be remembered, that in these discussions we have only one being, one agent, to consider; that is, the mind, or living person. Such terms as Will, Judgement, Memory, Imagination, Sensation, are very ambiguous, and of very dangerous use. They never express separate Beings capable of *acting*, or having *acts* of their own. They express our notions of certain faculties of the mind, or its powers of acting in certain ways; and consequently, by an easy transition, and almost inevitable and imperceptible metaphor, they denote the several classes of acts of the mind that are referred to those heads or faculties re-

3 Q 2 spectively.

spectively. Often, by a further metaphor, they are employed to denote single instances of acts, or exertions of faculties : As for example, will for willing, or volition; judgement for an act of judging, &c.

An act of the will can mean nothing but an act of *willing*, or the voluntary act of a person. Such an act may be very complicated : all overt acts certainly are so, depending on the conformation and condition of our bodily organs : it is highly probable, that all acts of the mind are (for the same reason) more or less complicated. The *willing* is a circumstance and part of many complicated acts, both overt and secret, and may no doubt take place without the rest of such acts; as in the instance of a palsied person, *willing* to move his hand, *willing* to speak, *willing* to remember, but unable to do any of them. To speak of an *act of the will prompting an action*, is either a violent metaphor, like saying that the wisdom of *Solomon* suggested to him his famous judgement between the two mothers, or that the eloquence of *Cicero* dictated to him his orations,

orations, or that the philosophical genius and mathematical knowledge of *Newton* shewed him the composition of light and the general gravitation of matter; or else it is an hypothesis too extravagant and absurd to deserve a moment's consideration. —The application of what is here said will appear in the observations to be made on some of the other remarks.

N^o 2.

THIS paragraph is wonderfully *obscure*. It is, I presume, needless to inquire minutely, how many, or what strange things, may be meant by the odd phrase, *the physical constitution of the mind on which its existence, &c. depend*, as the author himself acknowledges, *we have no faculties for examining it*.

The phrase *proper physical cause*, as used by him to denote something *supposed to be contained in the physical constitution of the mind*, requires more particular consideration.

tion. The term *Cause*, in its most extensive signification, means any principle of change; of which there are many different *kinds*. *Physical* is a Greek word, of the same meaning with *natural*. *Physical cause*, therefore, may be supposed to mean any *natural principle of change*. Now, we are not inquiring after any principles of change, but such as are perfectly natural: For example, an *agent*, such as a living person, according to the common notions of mankind, is as truly and naturally a principle of change with respect to his own voluntary actions, as impulse is with respect to motion, or heat with respect to fusion; or as *motives* are with respect to actions, or evidence with respect to belief. But these are four different *kinds* of causes, and of relations of event. In this sense of the term *Physical cause*, to say, that *the physical constitution of the mind contains it*, is as great an impropriety, as it would be to say, that the physical constitution of a man contained the father of his children, and that the physical constitution of a woman contained the mother of hers. The
mind,

mind, or living person, does not *contain*, but *is*, that kind of cause; just as a man and his wife do not *contain*, but *are*, the father and mother of their children. I always avoid using the term *Cause* in that sense; because, though sanctioned by some philosophers, it is repugnant to common use; just as it would be to say, that parents were the causes of their children. In common language, we say, that men speak, and walk, and eat, and drink, and are fully as well understood as if we were to say, that they *were*, or that they, or that their physical constitutions, *contained* the proper physical causes of speaking and walking, of eating and drinking.

If by *proper physical cause* he means that kind of cause which impulse is to motion, heat to fusion, &c. which excludes the possibility of any self-governing power in the subject, whether living person or lifeless body, he ought, in the first place, to have explained very fully, why he assumed as a self-evident principle a doctrine

trine so strange, and so repugnant to common opinion, as that it is contained in the physical constitution of the mind, or in the nature of every substance in which a change takes place.

We regard the stroke of a billiard-club on a ball, as the physical cause of the ball's consequent change from rest to motion; and we regard the explosion of gunpowder in a loaded cannon, (which explosion is only a peculiar modification of impulse), as the physical cause of the change of state in the ball from rest to motion. But we do not regard the stroke of a wooden club, or the explosion of gunpowder, as contained in the physical constitution of the billiard, or of the cannon ball, respectively.

In like manner, we consider the sun and moon as the physical causes of the tides; but by no means as contained in the physical constitution of the sea: on the contrary, we believe the moon to be two hundred and forty thousand miles, and the
sun

fun to be at least an hundred millions of miles, distant from the sea. We regard a certain degree of heat as the physical cause of the melting of ice, and a certain greater heat as the physical cause of the boiling of water; but by no means as contained in the physical constitution of ice or of water. We regard heat and light, and air and moisture, not as the full physical causes, but as partial and accessory causes, of the growth of plants; yet not as contained in the physical constitution of them. We regard, however, the vital principle of a plant, the concurrence of which with the other causes already mentioned is necessary for its growth, as contained in, or making a part of, the physical constitution of it. So, in the human body, we regard contagion as the cause of the production, mercury as that of the cure, of a very common disease; but we do not regard either the contagion or the remedy as contained in the physical constitution of our bodies; any more than a dose of arsenic, or a stab with a dagger, which may be the causes (immediate or remote) of diseases and of death. But we consider

the vital principle, without which there could neither be the venereal disease from contagion, nor the cure of it from mercury, as a part of the constitution of the body.

Even many of our most common mental operations or changes manifestly depend in a great measure on causes (principles of change) that cannot without absurdity be said to be contained in the physical constitution of the mind. Thus, belief depends on evidence, so perfectly as to exclude the possibility of any self-governing power with respect to it. Yet though the belief of twelve sensible jurymen, or of a great popular assembly, will depend completely on the testimony of two or three good witnesses, it would be absurd to say, that their testimony was contained in the physical constitution of the minds of those who heard and who believed it. And in sensation, though much no doubt depends on the physical constitution of the bodily organs, and much on the state of the mind, it is plain, that much depends on external causes, such as the impulse of light on the retina, the vibrations

brations of the air conveyed to the organ of hearing, the volatile odorous particles applied to the nostrils, &c. which certainly are not contained in the physical constitution, either of the human body or of the human mind.—Supposing, lastly, as the most intelligible and favourable construction that can be given to the phrase in question, that the author of the remark meant no more by it than to say, that he could not *conceive* any change to take place in mind or body without a physical cause for such change; we must first inquire what he means by the term *conceive*, and it will immediately appear what regard is due, and what answer should be given, to the remark. If he has used that word in its most strict and proper signification, as synonymous with *understanding*, *apprehending*, or *having a notion of*; which I should presume were his meaning by it, if he should say, that he could not *conceive* the joys of heaven, or that a man who never saw could not *conceive* the difference between red and blue; and if he has attended to his own thoughts with sufficient candour and patience;

there must be a very great peculiarity and a fundamental defect in his faculties : for ordinary men *conceive* easily what he cannot conceive at all ; and they *believe* that there are many different relations of event, and several other kinds of causes, besides physical causes strictly so called, and many events that do not depend on physical but on other causes. Such a defect in his faculties must completely disqualify him from judging of this subject, or understanding what other men understand about it. And it would have been prudent for him not to have meddled with it. If he has used the term *conceive* as synonymous with *believe*, as is very commonly done, then the very mysterious sentence, the first of N^o 2. is little less than a begging of the question. It is at least a plain declaration, that his opinion with respect to it is fixed beyond the reach of argument, or evidence of any kind. If he really *cannot* believe or conceive what is to be proved, he must let it alone, and leave it to the consideration of ordinary men, who can conceive all common notions ; that is, who understand,
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or at least who can learn, common language; and who not only *can*, but *must* believe according to evidence. My Essay is addressed to such persons only as can *conceive* or apprehend all those things or notions about which I reason; and who will *believe That* to be true, the direct contrary of which is proved to be false, as implying, by necessary consequences, some things which are evidently absurd, and others which are experimentally false.

As to the third sentence of N^o 2. I must observe, that *volition* and *act of the will* (which in it seem to be distinguished) are perfectly synonymous terms; and that *the perceptible operations of the mind, or the processes of thought which attend on* (I presume the author means rather which precede) *volition, (or act of the will), may be considered as exciting causes* of such act of the will or volition, or not, just according to the sense in which he employs the phrase *exciting cause*. that is, according to the notion or relation which he means to express by it.

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Some thoughts which precede or attend our voluntary actions, such as appetites, passions, desires, and some judgments, or, in general, what are called *Motives*, are universally acknowledged as a kind of principles of action, that is, of change; and as they are only partial and accessory, not the sole causes of the actions referred to them, they *may* be called *exciting causes* of those actions, by an extension of the meaning of the phrase *exciting cause*. But such an innovation in language is, in the first place, needless, because the familiar terms *motive* and *final cause* express the same meaning, or the notion of the same relation, perfectly well. It is, in the second place, improper, because the phrase *exciting cause* has a very different meaning, both as employed in medical language, and as I have used it in this Essay. To employ the same phrase to denote different meanings, is the surest way to frustrate our reasonings, by making us confound in our thoughts the different things about which we reason.

Other thoughts, such as sensation, perception,

ception, apprehension, memory, some judgements, nay some passions, (for example grief), which precede or attend many of our voluntary actions, have never been considered as causes of such actions, any more than the morning dawn is considered as the cause of the rising of the sun; nor ought they to be regarded as any kind of causes of our actions.

And some processes of thought, even violent appetites, passions, and desires, are often so far from being causes of many voluntary actions which they precede or attend, that such actions are commonly and justly thought to be done in spite of them; that is, in opposition to them. Thus, when a rake takes physic, which he loaths, for his ills, and marries a rich old woman, whom he abhors, to repair his shattered fortunes, we conceive, that his loathing of the physic, and his abhorrence of the wife, though they precede and attend the volitions and actions of swallowing the drugs, and marrying the wife, are not the motives of them. The motives for these two actions respectively
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are conceived to be the desire of recovering health, and the desire of acquiring wealth. But the loathing and the abhorring are by no means sentiments indifferent or unrelated to the actions in question, as numberless other processes of thought preceding or attending them might be; such as the person's sentiments in religion or in politics; for example, his being High or Low Church, Whig or Tory. They are motives for *not* acting in the way supposed; but they are motives *separated* from their proper actions.

The author of the remark under consideration may, at his own discretion, apply the phrase *exciting cause*, with respect to the volitions of swallowing and of marrying, in the cases put, either to all the processes of thought that are specified, Whig and Tory, loathing and abhorring, desire of health and desire of wealth, as they all attend or precede the actions, or only to these two last. It would be foolish to dispute with him about a word; but it must be remembered, that all those three kinds of sentiments stand in relations to the

the actions alluded to, very different from one another, and very different from the relation of occasional causes to diseases, or from that of the partial and accessory causes of vegetation to the growth of plants. And all these differences of relation must be ascertained, not by arbitrary definitions, nor by the arbitrary imposition of names, but by careful observation and experiment, and strict induction from these; and for the sake of precision and distinctness in reasoning, they *ought* to be expressed by different words or phrases.

As to the two last sentences of N^o 2. I must observe, that there seems to be in them a studied peculiarity, and intended obscurity, in the way of stating and contrasting the two suppositions. Many circumstances contribute to this obscurity. Neither the term *Motive*, nor any equivalent word or phrase, is employed in stating the question. This omission cannot have been by chance; and it is a very strange omission, to say no worse of it, in stating objections to an argument about the relation of motive and action; which

argument consists of necessary consequences from two different suppositions with respect to that relation. It shews a strong desire to *evade* that argument, and to avoid examining, and either refuting or admitting, those necessary consequences. The expressions, *processes*, or *trains of thought*, are by far too general and vague; nor can I know with certainty what is meant by them; and I think it probable that they are intended to denote many things, or kinds of thoughts, which may precede or attend voluntary actions, without being the motives of them. Now, with such thoughts I have nothing to do in this argument.

The word *contingent* occurs repeatedly in those two sentences; and much stress seems to be laid on the notion expressed by it. It ought therefore to have been accurately explained; for it may be understood in different meanings. If by *contingent* be meant *coming to pass without a cause of any kind*, such a notion is here quite out of the question: neither I nor any person that I know of can believe *that* ever to be
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the case. But if by *contingent* be meant *coming to pass without a physical cause*, (in the sense fully and repeatedly explained and illustrated already), we hold, that there are numberless contingent events, in the familiar occurrences in animal and vegetable life, and in all processes of thought, or operations of mind. In particular, we hold, that all our voluntary actions, whether secret, like chusing and resolving, or overt, like walking and eating, are, in this sense of the term, contingent. We know of nothing that stands in the relation of physical cause to them. We know of no other causes or principles of change for them, but the persons or agents, and the motives: it is, I think, self-evident, that neither the agents nor the motives are the physical causes of the actions referred to them; nor has it ever been said that the agents were so; but it has been maintained that the motives were so, on the principle of their being constantly conjoined with their respective actions; which physical causes seem to be with their respective effects. Now, this can be ascertained only by examining the

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relation of motive, and comparing it with that of physical cause. But the author of the remark thinks fit to drop the consideration of motive, and its relation to action, and to treat of things which may be very different, and which must be supposed somehow different, as he gives them other names.

—“ *However constantly conjoined the acts of the will be with their proper physical cause.*”—I cannot guess, nor have I as yet been lucky enough to meet with any person who can guess, what is here meant by *proper physical cause*. The very question at issue is, “Is the motive of an action its physical cause;” which involves the more general question, “Are there physical causes of voluntary actions?” Both these questions must be answered in the negative, after strictly examining and comparing voluntary actions with physical effects, and the relation of motive with that of physical cause, especially with respect to the point of constant conjunction.

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The word *however* comes forward here in a very questionable shape. Does the author of the remark mean to state the principle of constant conjunction, as an essential part of the first or of the second supposition, or to omit it in both, or to avoid doing either the one or the other, and so to evade the decision of the question, by escaping from both the *horns* of the dilemma?

This last is absolutely inadmissible. In strict and candid reasoning, a person must take his choice of one or other of the two suppositions offered in such a dilemma; just as in geometry he must admit, that the line A is either equal to the line B, or not equal to it; and if it be not equal to it, that it must be either greater or less than it. From what follows, however, there can be no doubt, that this unphilosophical and impracticable escape from the dilemma was intended.—“ *If that physical cause is only attended with its effect when stimulated by something contingent.*” *Physical cause* shall be allowed to signify any *thing* that the author pleases; and the strong metaphor, *stimulated by*, (which, taken literally, implies a kind of life and agency, both in
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the cause stimulated, and in the something stimulating it), shall be understood to mean only the occasional co-existence and co-operation (whatever be the mode of it) of something else. Then it is plain, that according to the state of the case given by the author of the remark, in the first supposition, what he calls the physical cause of the act of the will, is represented both as *constantly conjoined*, and at the same time as *not constantly conjoined* with its proper act; conjoined with it only when stimulated, not conjoined with it when not stimulated, by something contingent. Nothing but the obscurity of the expressions which he hath employed, and his studiously avoiding those plain and precise terms which I have used, could have prevented him from seeing that he has here fallen into something rather worse than a contradiction in terms; an incongruity of thought, of the same kind with that which in common language is called a *Bull*. What should we think of a mathematician who should say, that the square of the longest side of a triangle is *constantly* equal to the sum of the squares of the other two sides of it; but that, *however* constant this relation

relation might be, it took place only in the contingent case of the triangle being right angled?

Or what should we say of a chemist who should maintain, that water was the *menstruum*, or proper physical cause of the solution of silver and of mercury; and that it was constantly conjoined with that effect on those bodies when put into it; but that this physical cause, *however* constantly conjoined with its effect, was attended with its effect only when stimulated by a certain quantity of nitrous acid, and a certain degree of heat?

Or what should we think of a physician who should assert, that a few grains of crystals of tartar are the proper physical cause of severe vomiting, and are constantly followed by it; but that, *however* constant this may be, it happens only when the crystals of tartar are stimulated by a certain quantity of antimony?

Whatever be thought of the chemist, the physician, and the mathematician, in these

these supposed cases, must be thought of the metaphysician who conceives, that the acts of the will are constantly conjoined with their proper physical cause; but that, *however* constantly they are conjoined with it, this physical cause is only attended with its effect when stimulated by something contingent.

I have considered this point the more minutely, because the incongruity of thought which every attentive reader must find so glaring, seems to be imputed to *me*. The expression conveying it appears in the stating of *my* side of the question; but I disclaim it. It will appear clearly, both from the explanation, and from the uniform use and application of the terms *conjunction, separation, constant, occasional, &c.* as applied to motives and actions, causes and effects, and from the many instances given of their conjunction and of their separation, in my Essay, that I *could not* have fallen into such an incongruity of thought as that under consideration.

As my own way of stating my own side
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of the argument, or those propositions which I mean to prove, is at least clear and precise, and peculiarly adapted to the mode of reasoning which I employ, it was needless to give, in the remarks, my sentiments in any other words but my own. But if other words, without necessity, were to be employed instead of my own, they ought to have been such as to do justice to my argument, by expressing my meaning with equal clearness and precision, and without addition, diminution, or alteration.—As the case stands, I may say of my friend's way of representing my meaning, nearly what MARTIAL says of a person's way of reading or repeating *his* verses :

Quem recitas, meus est, O Fidentine, libellus :

Sed male cum recitas, incipit esse tuus.

N^o 3.

As there seems to be almost always (perhaps even in sleep) some succession or train of thoughts going on, over which a person has but a partial and limited voluntary power; and as a metaphysician may chuse to call any volition that occurs in such a train the *result* of the thoughts which preceded it, whether any of them stood in the relation of motive to it or not; and as such trains of thought cannot be made the subject of open observation and experiment, but may easily be made the subject of endless cavil and verbal altercation, I must disregard alike, as no way related to my mode of reasoning, the first sentence of this, and the last of the preceding paragraph. But the clause, "*As far as it is necessary to trace back the steps of them,*" deserves some attention. It is not necessary to trace the steps of them at all, if the object be only to ascertain the relation of motive and action with respect to their constant or their occasional and separable conjunction: for this will appear by observing,

ving, whether actions are always done, or only sometimes, on the application of their respective motives; which is a matter of simple observation and experiment, and, as has already been fully explained, may be easily known without any regard to the number or to the nature of the steps of the train of thought intervening between the motive and the overt act.

If the object be to ascertain that relation metaphysically, (if I may be allowed the expression), by mere consciousness and attention to our own thoughts, which I think a very bad plan, because it is very difficult, and subject to endless cavil; then it is necessary to trace every step of the train of thought *back* as far as the motive, and *forward* as far as the action, else the relation between these, as to the constancy or separability of their conjunction, can never be discovered.

But if the object be only to evade the decision of the question concerning the relation of motive and action by necessary consequences and open experiment; then,

to be sure, it is necessary to avoid tracing the steps of the train of thought, either *back* to the motive, or *forward* to the action: and it is expedient to speak of it in the most ambiguous and indefinite terms; and to put it, and to leave it, as much in the dark, and as much out of the reach of experiment, as possible.

“*The doctrine of the Necessitarians is supposed to be.*” Why *supposed*? Have I misrepresented it any way, either from mistake and ignorance, or from design? Have I not given it in the very words of MR HUME? Have not his doctrine and his phraseology been adopted by DR PRIESTLY? Is not my mode of reasoning perfectly independent of them, and of their phraseology, and of their doctrine? Is not the proposition which I undertake to demonstrate stated clearly and precisely *? and is it not directly contrary to the doctrine of Necessity? If my dilemma be complete, *my* notion of constant conjunction precise, my axioms arising from it

* Pag. 171.

just; and if my inferences with respect to the result in the various cases put be strictly necessary consequences of the principle assumed, (the direct contrary of what I mean to demonstrate); and if these inferences be false or absurd; is not my demonstration perfect? and would it not be so, though neither MR HUME, nor DR PRIESTLY, nor any other philosopher, had ever stated or taught any doctrine of Necessity, nay, though my opinion had been quite new to mankind, and the contrary opinion as natural and as universal among them, as the belief of the flatness and stability of the earth, and of the daily motion of the sun and stars around it? If so, I can have no occasion to consider any one of the numberless opinions or systems that may be called doctrines of Necessity. For they must either involve, or not involve, the proposition contradictory to mine in page 171: if they do involve it, they are refuted by my argument, unless some error in it can be pointed out: if they do not involve the proposition contradictory to mine, *requiescant in pace*: I do not wish to disturb them, nor to quarrel

rel with them about their names, and it is plain that my argument can never reach them.

—“ That every apprehension and desire of attainable good, or, *in the language of the Essay*, every motive.”—If the *apprehension and desire of attainable good*, or, more concisely, *desire*, (for desire implies apprehension, and the notion of good in the object desired), had been given as synonymous with *motive*, or explanatory of it, or as a definition of it, I should have acquiesced in it as a fair, though, for reasons formerly mentioned, a very needless definition of motive, and one that, for reasons abundantly obvious, might be subject to many cavils.

But here I find *insinuated* a distinction, and perhaps an important difference, between *motive* and *desire of attainable good*.

Why, *in the language of the Essay*? This is an insinuation that the language of the Essay, at least in so far as relates to the use of the term *Motive*, is different from
common

common and from philosophical language. If it be so, it is very bad indeed; nay more, the Essay itself, instead of being, as the author intended, a specimen of patient candid disquisition, and good reasoning, amounting to a rigorous demonstration of the point in question, must be one of the vilest quibbles that ever was obtruded on the world, either with respect to this or to any other subject; and the author of it must have deservedly forfeited all credit, both in point of understanding and of candour.

An objection to the Essay so important ought to have been expressed fully and clearly, not conveyed by a seemingly casual hint or insinuation; and a censure on the author of it, at once so severe and so groundless, ought not to have been expressed or conveyed in any way.

That I have not mistaken the meaning of the hint in question, nor done any injustice to the author of the remark in these observations on it, will appear from comparing this hint, and the expression *such motives,*

motives, in the end of N^o 3. with the general tenor of the subsequent remarks, and particularly with the two last sentences of N^o 5. In the former of these, it is said to be “a mistake to have supposed, that, according to the Necessitarians, every apprehension and desire of attainable good had a determinate influence on the will.” Let it be remembered, that I reason about the constancy or inconstancy of the conjunction of motive and voluntary *actions*, not about the influence of desires on the *will*; and that it is absolutely impossible that I should have fallen into any mistake with respect to a point on which I had neither expressed nor formed any opinion. Such *desires* either are or are not *motives*: if they are, I am perfectly right as to the doctrine of the Necessitarians; if they are not, I at least am not mistaken with respect to it, as I have never said nor thought, that, according to their doctrine, any things else but motives were constantly conjoined with actions. In the latter of those sentences, (N^o 5.), it is said, that “no Necessitarian requires any argument to be convinced, that
there

there is no constant conjunction between them (desires of attainable good) and human actions."

Here there is an explicit acknowledgement, that such desires are not constantly conjoined with actions; and tho' nothing is said with respect to the constant conjunction of motive and action, about which I reason; yet it is certainly implied, that they are constantly conjoined; and therefore that a motive is something different from a desire of attainable good.

In the remarks, as they are printed, there is no distinct enunciation of what the author of them means by motives; nor, consequently, is it clear what kind and degree of perversion of language he means to impute to me with respect to the use which I make of that term. But in the remarks, as I first received them from the author of them, this was fully explained by a few sentences, which made the latter part of N^o 14.; the substance of which was, "That by the term *Motive*, in the language of the Necessitarians, he

understood only those gratifications which have obtained a judgement ascertaining their superior merits, upon the whole, to others in competition with them.—That this import of the term seemed agreeable to Dr Johnson's interpretation of it, "That which determines the choice,"—"That which incites to action." As he observed, however, that in the Essay it seemed employed to denote any apprehension and desire of attainable good, whether its superiority to others, in competition with it, had been ascertained or not, he avoided making use of it in his remarks."

Allowing the strongly metaphorical expressions in these sentences to pass without discussion, let us consider only the general import of this remark, as shewn by the application of it to particular instances. It amounts plainly to this, That those desires, &c. *alone*, are motives, according to which a person thinks fit, judges proper, determines, resolves, or chuses to act; or according to which he does act, when not hindered by physical impediments: For example, that in the case put, p. 226. the
porter's

porter's desire to earn a certain number of guineas is a motive; but that his desire of earning an equal number of half-guineas is no motive. In like manner, when a gay rake marries a disagreeable rich old woman, his desire to get possession of her fortune is a motive; but his dislike to her person is no motive. And when a sturdy rogue endures the torture, rather than confess, and be hanged, his dislike to hanging is a motive, his abhorrence of pain is none: but when a rogue of a feebler frame yields to the torture, or to the fear of it, and confesses, though he knows he must be hanged if he does so, his abhorrence or his fear of pain is a motive, his aversion to hanging is none. And when a miser delivers his purse to a highwayman who civilly puts a pistol to his breast, he has a motive for giving away his money, but none for keeping it.

It will appear from the whole tenor of my reasoning, as well as from several particular observations in my Essay, for example in p. 133. and 461. to 464. that

I was not unprepared for this kind of objection; that it was easy for me to answer it; and impossible for me to think it of any weight, or to regard it as any thing else but a wilful perversion of language.

I was, however, mortified to meet with it in these remarks; not for my own sake, but my friend's: for I was peculiarly pledged to publish *his* remarks, with my answers to them, if I did not think his objections valid. I could not answer this objection, without vindicating myself from the imputation of quibbling; nor do this, without retorting, and fixing that charge on him. For it is plain, that either he or I must be quibbling on this point, in a manner almost unparalleled.

In hopes of saving myself the trouble and vexation of such a long discussion about words, which can avail nothing as to the decision of the philosophical question, I explained very fully my notion of it to a brother Necessitarian of the author of the remarks, referred him to the passages

fages in my Essay in which these verbal objections were anticipated and discussed, and prevailed on him to represent to the author of them what I thought of them, as unphilosophical in themselves, and in one point of view injurious to me, and requiring an answer which implied a retorting of the charge of perverting language, or quibbling, which they conveyed by such strong implication; and in my name to beg the author to reconsider them maturely.

He did so accordingly; and after some time returned them to me, with the latter part of N^o 14. erased, (but not made illegible), and the following marginal note subjoined to it; "I think the passage may be spared; and therefore I prefer deleting to illustrating it."

* As the passage (N^o 14.) was erased avowedly as being *superfluous*, and on that account; as it was not retracted as erroneous, nor acknowledged to be unjust with

* MS. *Penes me.*

respect to me; as the same meaning is conveyed by irresistible implication in other passages of the remarks which are allowed to be printed, and as indeed it plainly pervades the whole reasoning in the remarks; I find myself still under the unpleasant necessity of discussing it fully; not that I think it a point of the smallest consequence in science, or even in the question of liberty and necessity, as I hope soon to shew; but because I am sensible I am not intitled to be attended to in any reasoning, till I have shewn that I have neither made, nor attempted to make, any such innovation or perversion in common language, as is imputed to me. In justice to the author of the remarks, I have taken his own explanation of his own hints.

The term *Motive* is plainly relative; the notion of it implies or involves some other notions, such as desire, object, agent, action, and many others. In this respect it resembles many other familiar notions of things somewhat of the same class or category with itself; as for example, agent,
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(in its most general meaning), or writer, poet, painter, dancer, in particular; instrument, in general, or spade, axe, ruler, compasses, telescope, in particular; physical cause in mechanical philosophy and chemistry, such as impulse or heat; exciting physiological cause of the phenomena in animal and vegetable life, such as heat, air, and water; evidence in general, or testimony in particular, with respect to belief. All these things imply, as correlatives, some other things, events, changes, effects, actions, &c.; that is, they can never be conceived, or thought of, any more than motive can, without conceiving or thinking of something else. But this implied relation may be considered in two very different points of view, and, strictly speaking, is of two kinds, the one remote and general, the other immediate and particular; the former constant, and essential to the notions in question, the latter only occasional and accidental, and by no means essential to or implied in those notions respectively. Thus we may regard an agent, instrument, cause, or motive, severally, either
as

as bearing a constant implied remote and general relation to their respective *kinds* of correlatives, or as bearing an occasional more immediate relation to particular *individual instances* of their respective correlatives. And in good language, such as is used in conversation by well educated persons, and in writing by the most esteemed authors, the relative terms in question are employed equally (though not indiscriminately) both in the general and in the particular meaning that I have mentioned; which it may be expedient now to illustrate by particular examples.

In good broad English, we call a spade *a spade*; meaning thereby an instrument adapted for digging the ground, and very often used for that purpose. But we call it equally a spade, whether it be actually and immediately employed in that way by any person, or not. It may be new, and never once used: it may have been used, and long laid aside: the person who has got possession of it may have no thoughts of ever using it; he may be considering whether he shall use it or not; he may be
resolving

resolving to use it; he may have resolved to lay it down; he may be using it not as a spade, but as a staff, or as a lever, or as an oar, or as a weapon of offence or of defence. Still, however, in all these cases, we call it an instrument, in contemplation of a certain relation it bears to such actions generally as may be done with it; and we call it a spade, in contemplation of the same kind of relation that it bears to the action of digging the ground particularly, though remotely. Take away the notion of such relations, and it could not be thought either a spade, or an instrument of any kind: it would be a body of a certain size and shape, and other properties; it would be an aggregate of wood and iron, &c.

In like manner, we think and speak of a man as an agent, perhaps, as one of most extraordinary activity, even though at that particular moment he may be doing little or nothing, nay, though he be asleep.

So we conceive MILTON to have been a

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great English poet, not only in those hours when he was composing the most sublime and beautiful passages of *Paradise Lost*, but when he was writing prose Latin letters for *Oliver Cromwell*: and we conceive both MILTON and ADDISON to have been excellent writers in different ways, even at those hours when they were writing nothing, but were engaged in the common duties or business of life.

We conceive and speak of heat and air, and light and water, as the accessory causes of vegetation, on account of the general remote relation which all and each of them bear to the growth of plants, tho' we understand that any one or more of them may be applied to a plant, without producing any growth in it; nay, though all of them may be applied to a plant that has lost the vital principle, without having any such effect on it.

We speak of human testimony as a kind of evidence, or ground of belief, without regard to the contingent fact of belief in any particular instance corresponding to it.

it. In case of the opposition or inconsistency of equally good testimonies, no belief, but doubt, would be the result: and in case of the most unimpeached testimony, in opposition to direct sensation and perception, or even to distinct memory, belief would take place, contrary to the testimony. Still, however, in regard of the general and remote relation of testimony to belief, it is called Evidence.

We often have occasion to speak of physical causes, such as impulse, gravitation, heat, menstua, &c. considering only their remote or general relation to their respective effects, such as motion, fusion, solution, &c. without regard to their being applied at any particular time to any particular body in whom such effect can take place. But we conceive, that whenever they are applied to bodies between which and them the relation in question subsists, their effects will constantly take place. This is precisely what is meant by the relation of constant conjunction about which I have reasoned; and which *seems* to subsist between physical causes and effects; but

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certainly

certainly does not subsist between motives (commonly so called) and the voluntary actions of men.

The same observations and reasonings, which it cannot surely be necessary to illustrate more fully, are strictly applicable to the term *Motive*: and that, in fact, this term is commonly employed in this general sense, will appear sufficiently from the following examples.

“ And truly it appears to me, that the
“ whole species are *hurried on* by the same
“ *desires*, and engaged in the same pur-
“ suits, according to the different stages
“ and divisions of life. Youth is *devoted*
“ *to* lust, middle age to ambition, old age
“ to avarice. These are the three general
“ MOTIVES or PRINCIPLES OF ACTION,
“ both in good and bad men; though it
“ must be acknowledged, that they change
“ their names, and refine their natures,
“ according to the temper of the person
“ whom they *direct* and *animate*. For with
“ the good, lust becomes virtuous love,
“ ambition

“ ambition true honour, and avarice the
“ care of posterity.”

ADDISON, *Tatler*, N^o 120.

In this passage it may be observed, that the term *Motive* is applied in its most common, that is, its absolute or general meaning; that certain *desires* are expressly called *motives*, or *principles of action*, without the smallest insinuation of a *motive* being any thing different from a *desire*, or of a *desire* becoming a *motive* in certain circumstances only: For example, *not till the understanding decides on its preference, or on the expediency of attempting the pursuit of it*; and that, in the metaphorical language employed, the desires are represented as hurrying men on, directing them, animating them; and men are represented as devoted to them. All such expressions, whether literal and abstract, or metaphorical and picturesque, mean just the same thing, viz. that such desires are the principles of action, or motives, about which, and about whose relation to actions, we have occasion to reason.

The

The definition of *motive* given by DR JOHNSON, in his Dictionary, though sufficiently good for all ordinary purposes, is useless, nay bad, in science, as being both strongly metaphorical and hypothetical. But the instances of the use of the term, which he has selected from good authors, are unexceptionable; and I should desire no better instances in proof of what I have stated as the proper meaning of *Motive*. They are as follows.

1. "Hereof we have no commandment, either in nature or scripture, which doth exact them at our hands; yet those *motives* there are in both, which draw most effectually our minds unto them."

HOOKE.

Here we have plainly the absolute sense of the term *Motives*, implying only their more remote and general relation to actions: not a word said of the things alluded to being motives only when and after "the understanding decides on their preference," &c. On the contrary, as the motives alluded to are said to be both in
nature

nature and in scripture, it is irresistibly implied that they are motives before the understanding decides on their preference, nay, whether it ever does so or not; just as the things alluded to in the first clause of the sentence are *commandments*, whether a person or a person's understanding decides on their preference, or on the expediency of obeying them, or not.

It would be a palpable absurdity to say, that there are both in nature and in scripture some things, on the preference of which, and on the expediency of attempting the pursuit of them, the understanding of every person who has attended or is to attend to nature, or who has read or is to read the scripture, has decided.

2. "Why in that rawness left you wife and children, those precious *motives*, those strong knots of love, without leave taking."

SHAKESPEARE.

Part of what *Malcolm* says to *Macduff*; and a kind of reproach to him for not providing
for

for the safety of his family. The uncouth word *rawness* means unprepared or unprovided state. The expression is in another respect elliptical: in strict and full philosophical language, the wife and children could not be called *motives*: they are properly the objects of certain affections, which affections are the *motives*. Supposing his wife and children to have been hateful or indifferent to *Macduff*, they could not have been called by *Malcolm* "precious motives," in the sense here conveyed. But as *Macduff* is represented as a good man, and passionately fond of his wife and children, the ellipsis is easily supplied, and the meaning of the passage is in a moment fully understood. But it is plain, that the term *Motives* is applied to things or considerations which could not altogether have escaped the attention of the agent, but on the preference of which neither he nor his understanding had decided. They were motives according to which he did *not* act; that is, motives separated from their proper actions.

3. "What can be a stronger *motive* to

" a

a firm trust on our Maker, than the giving us his Son to suffer for us?"

ADDISON.

This is plainly the absolute sense of motive, from its remote and general relation to the action in question, and predicated of a thing, whether the understanding decides on its preference or not. The same may be said with respect to the following instance, the last given by DR JOHNSON;

4. "The *motive* for continuing in the same state, is only the present satisfaction in it; the *motive* to change is always some uneasiness."—LOCKE.

If any philosophers, in their reasonings about motives and actions, had chosen to use the term *Motive* in a peculiar meaning of their own, different from, and much more limited than, the common meaning of it, (which would have been very needless, and not very wise, as it could be no addition to our knowledge), they ought to have begun by explaining precisely, and illustrating fully, the sense in which they

used the term; else their conduct might justly have been reckoned uncandid, as well as their reasoning bad or frivolous. And if MR HUME and his followers had fairly announced, that in all their reasonings about the constant conjunction of motives and actions, they meant by motives those desires only on the preference of which the understanding had decided, it would instantly have been discovered, that their doctrines bore no relation to the scientific question at issue; and that those great philosophers had a mind only to make themselves merry (according to the custom of metaphysicians) at the expence of the ignorant vulgar, who could not fail to stare at such marvellous novelties; just as they would stare if a philosopher should tell them, that a certain quadruped, on which he occasionally rode, was not a horse, but only a beast, while he was feeding in a meadow, or standing in a stable, nay, even though fairly bridled and saddled; but that as soon as the philosopher bestrode the beast, and clapped spurs to him, then he became *bona fide* a horse, as appeared by his movement; or if the philosopher

losopher should gravely assure them, that a portion of the flesh of an ox, even tho' properly boiled or roasted, and served up to table, was not beef, but only meat; but that as soon as any person applied his knife and fork to it, and began to eat of it, then, and not before, it became truly beef.

But I am very far from thinking, that either MR HUME or DR PRIESTLY had in view any such frivolous perversion of language. It appears to me very plainly, from the whole tenor of their reasonings on this subject, that by *motives* they meant just what I and other people who speak English mean by the same term; that they conceived the judgement of a person (or, in the language of the author of the remark, the decision of the understanding) with respect to action, as much as his will, choice, or determination, to be the effect of the *motive* or *desire* to which they are referred; and that being misled by the analogy of physical causes, and consequently attentive to those instances only that favoured their system, and regardless

of those that were inconsistent with it, they had rashly and erroneously asserted, that such desires or motives were constantly followed by or conjoined with their respective actions, like physical causes with their effects. And that this was only a rash and erroneous assertion of those philosophers, not their real thought or belief, I judge from having found it so in those who had adopted their system, all of whom, the author of the remark included, as soon as the proper cases were suggested to them, have perceived intuitively, without having occasion to try any experiments, that such motives were not always followed by, or constantly connected with, their respective actions. This he acknowledges fully in the last sentence of N^o 5.; but with a reference to the preceding insinuation, that such *things* were not what philosophers meant by *motives*.

As MR HUME, and those who have followed him in his mode of reasoning concerning the constant conjunction of motive and action, have attended almost solely

ly to those cases in which actions were done corresponding to the motives applied, it cannot be expected, that any of the instances which they give in proof or illustration of their system should be examples, like the one quoted by DR JOHNSON from SHAKESPEARE, of the application of the term *Motive* to desires not followed by their corresponding actions. If any such instances had occurred to MR HUME, the doctrine of Constant conjunction would probably never have been heard of: and if any such had occurred to DR PRIESTLY, it can scarce be doubted, that instead of adopting MR HUME's system, he would have fallen into the same train of thought, and of demonstrative reasoning, that I have employed to refute that system. But there are many instances in the writings of both those authors on this subject, in which the term *Motive* is employed, or the notion of it alluded to, in that absolute and most general acceptation which I have explained, implying only its remote and general relation to action: For example,

“ The

“ The same motives always produce the
“ same actions; the same events follow
“ from the same causes. Ambition, avarice,
“ self-love, vanity, friendship, generosity,
“ public spirit; these passions,
“ mixed in various degrees, and distributed
“ through society, have been from the
“ beginning of the world, and still are,
“ the source of all the actions and enterprises
“ which have ever been observed among
“ mankind.”

“ The poorest artificer — expects, that
“ when he carries his goods to market,
“ and offers them at a reasonable price,
“ he shall find purchasers; and shall be
“ able, by the money he acquires, to engage
“ others to supply him with those
“ commodities which are requisite for his
“ subsistence.”

“ A prisoner, who has neither money
“ nor interest,” &c. as already quoted,
pag. 65.

“ We consider not, that the fantasti-
“ cal

“cal desire of shewing liberty, is here
“the motive of our actions.”

HUME, *passim*.

Not a word is here said of such *desires*, passions, &c. being no *motives* of themselves, and only becoming motives or sources of actions, when the understanding decides on their preference, &c. : on the contrary, we find them expressly called *Motives*, without any peculiar explanation of the term; nay, the common ellipsis is used; the object of desire, such as goods and money, being stated as the motive.

The following examples I select from
DR PRIESTLY.

“ — That men do in fact act according to their *affections* and *desires*, i. e.
“ in one word, according to *motives*.”

“ It makes no difference to say, that
“ the motive does not *immediately* produce
“ the action. It is enough if it necessarily produce the immediate cause of the
“ action,

“ action, or the cause of the immediate
 “ cause, &c.: For example, if the * *mo-*
 “ *tive* excite the desire, the desire deter-
 “ mine the *will*, and the will produce the
 “ *action*. For, contrive as many mediums
 “ of this kind as you please, it will still
 “ follow, that the action is *ultimately* ac-
 “ cording to the motive, *flows from it*, or
 “ *depends upon it*; and therefore, in pro-
 “ per philosophical language, the motive
 “ ought to be called the *proper cause* of
 “ the action. It is as much so as any
 “ thing in nature is the cause of any thing
 “ else.” Vol. i. p. 54. 55.

“ Moreover, we see evidently, not only
 “ that men are determined to act by cer-
 “ tain motives, but that the *vigour* of
 “ their actions corresponds also to what
 “ may be called the *intensity* of their mo-

* The striking peculiarity of this expression, in
 opposition to his own definition of motive given in
 the preceding page, arises from DR PRIESTLY ha-
 ving here inadvertently used the term *Motive* for the
 object of the desire, for example goods or money.
 His meaning is clear, though his expression be vague
 and improper.

“ tives.

“ tives. If a master be actuated simply
 “ by his anger, he will beat his servant
 “ more violently, and continue the cor-
 “ rection longer, in proportion to the *de-*
 “ *gree* of his anger, or the apprehended
 “ cause of his displeasure; and kindness
 “ operates exactly in the same manner,
 “ a stronger affection prompting to great-
 “ er, and more kind offices, than a weak-
 “ er.

“ Also opposite motives, as causes of
 “ love and hatred, are known to ba-
 “ lance one another, exactly like weights
 “ in opposite scales. According to all ap-
 “ pearance, nothing can act more inva-
 “ riably, or mechanically. Is it possible,
 “ then, that a philosopher, observing
 “ these constant and uniform appearan-
 “ ces, should not conclude, that the pro-
 “ per cause of a man’s actions are the
 “ motives by which he is influenced?
 “ Strengthen the motive, and the action
 “ is more vigorous; diminish it, and its
 “ vigour is abated; change the motive,
 “ and the action is changed; entirely
 “ withdraw it, and the action ceases; in-

“ introduce an opposite motive of equal
 “ weight, and all action is suspended,
 “ just as a limb is kept motionless by the
 “ equal action of antagonist muscles. As
 “ far as we can judge, *motives* and *ac-*
 “ *tions* do, in all possible cases, strictly
 “ correspond to each other.” Pag. 30. 31.

In this supposed case, of the equal and opposite motives exactly balancing each other, and all action being suspended, it is plain, that by *motives* must be meant *things*, such as *passions*, *desires*, &c. on the preference of any of which the understanding *has not decided*, and, what is more, *cannot decide*. That decision, or judgement, (which in fact is just what in common language we call choice, determination, will, &c. as I shall soon have occasion to shew), is represented by all Necessitarians as quite involuntary, and completely determined by the motives (*desires*) that are applied.

But surely any commentary on these passages must be needless. And it must be equally needless for me to declare, that in
 all

all my reasonings on this subject, I have always employed the term *Motive*, *bona fide*, in what I conceived to be its proper sense, and that in which it was used by MR HUME, DR PRIESTLY, and other philosophers who have held the doctrine of Necessity; that my Essay has been carefully perused by *thirty* other persons, all of them well qualified to judge of it in every respect, and many of them very unwilling to acquiesce in my reasonings, and very desirous to find an error in them, none of whom discovered or suspected any such innovation or perversion of language on my part, as the author of the remarks imputes to me; that many of these persons, on my communicating to them the remarks under consideration, agreed with me in thinking, that the author of the remark in question, and not I, was attempting an innovation in language with respect to the meaning of the term *Motive*, and that this innovation was equally unnecessary and unavailing; that I had often conversed and argued, on these subjects, with the author of the remark, both *viva voce* and in writing, in the firm belief,

that we both of us meant the same thing by that term, and certainly without ever observing that either he or I fell into any thing like cross-purposes in our reasonings about *motives*, which I think *must* have happened if we had annexed different meanings to that word; that I never heard from him of any difference about the meaning of it, till some time after he had perused, and made several other objections to, those sections of my Essay in which I demonstrate, that the things usually called motives are not constantly conjoined with their respective actions. I therefore cannot help thinking, that the objection and insinuation in question is merely an expedient to avoid admitting my inference; that it is uncandid with respect to me, and altogether unavailing with respect to the question at issue, or even with respect to my peculiar mode of reasoning.

I cannot better shew how uncandid and unavailing it is, than by stating a parallel case, of the adopting an erroneous notion and opinion, and employing a
mere

mere verbal expedient, to avoid giving it up even when shewn to be wrong.

A certain Prince of Orange, a man of good sense, and much knowledge of the world, took notice of two prevailing vulgar errors: That peaceable men imagined that a soldier was *always* fighting; and, That a young girl imagined that a lover was *always*, *En etat*.

This wise Prince, who, I presume, had been in his day both a soldier and a lover, knew better, and was well qualified to refute such erroneous opinions. It cannot even be supposed, that with any man or any woman of good sense and candour, he would find any difficulty in exploding the errors in question; but if he had entered the lists with a metaphysical Burgomaster of Amsterdam, or, for his sins, had fallen into the hands of some little Metaphysician in petticoats, (*Quale portentum neque militaris Daunia in latis alit esculetis, nec Juba tellus generat, leonum arida nutrix*), I suspect he would have been fore put to it to have set them right, if they had

had unluckily fallen into the common errors. The Burgomaster had only to say, that the man who was not *always* fighting was no *soldier* for him; and the girl had only to declare, that the man who was not *always En etat* was no *Lover* for her; and the wise Prince would certainly have had the worst of the argument, and must soon have declined so unequal and so unavailing a contest.

Such I conceive to be the nature and force of the objection insinuated against my argument; which I should never have thought of answering, but for the reason already mentioned, namely, that two persons, of whose talents and knowledge I have the highest opinion, have expressed their approbation of it. It appears to me somewhat strange, however, that neither of them thought of such an objection to my phraseology and my mode of reasoning, tho' both of them were well acquainted with my Essay for many months, nay for years, before those remarks were written, and had often conversed with me about it, and even favoured me with various remarks
upon

upon it in writing, which I have preferred; and though such a perversion of language, and such frivolous and uncandid reasoning as are imputed to me by the insinuation in question, if real, must have been strikingly obvious to them at first sight.

It only now remains for me to point out, that such uncandid and frivolous reasoning was not only unintended, but quite unnecessary on my part; for my mode of reasoning will apply equally well to ascertain the relation between *desire* and *judgement*, (in the language of the author of the remark), as between *motive* and *action*, (in common language), and to show, that what he calls *judgement*, or *the understanding deciding on the preference of any desire of attainable good*, is a *voluntary* act of the mind; and not like belief, or judgement with respect to the truth or falsehood of a proposition, which appears plainly to be *involuntary*.

The terms *Judgement*, or *decision of the understanding on the preference of a desire*,
as

as employed by him on this subject, are phrases perfectly synonymous with *chusing, preferring, resolving, &c.*: so that, admitting his phraseology with respect to *motive*, and its constant conjunction with action, his doctrine amounts to this only, that men always chuse according to the motive according to which they chuse, which is an identical proposition that no person can dispute; nor will any person dispute, that a man, when not hindered by physical impediments, will *act* according to the motive according to which he chuses. But the great philosophical question at issue is of a very different nature from these frivolous and almost identical propositions; it involves and essentially consists in the inquiry, what is the relation between the voluntary actions of men, and those desires to which they are ultimately referred as the causes or principles of change from which they proceed? what is the relation between the person himself, or agent, and his voluntary actions? in particular, is he merely the subject in which those actions take place, like effects in lifeless bodies, purely in
confe-

consequence of the causes applied, or is he in part, and, if so, to what extent, and in what manner, is he, the author, cause, or principle of change, to which his actions should be referred, as well as to the desires, which are by all acknowledged as principles of change or of action.

The essential part of this inquiry may be ascertained without meddling with the various intermediate steps, or links, of the process of thought, or series of events, between the desire and the ultimate overt act: and I thought, and do still think it better, to avoid the inquiry into those parts of the process which cannot be made the subject of open unequivocal experiment, and which require any appeal to consciousness; for this is little better than an appeal to the candour, to the natural capacity or talents, and to the acquired habits of attention and reflection, and of intense and steady thought without the use of words, (which are ambiguous and deceitful), of every individual with whom we may have occasion to reason; but these accomplishments, even in a moderate de-

degree, are very rare, and perhaps have never yet been possessed in absolute perfection by any person.

But if any person shall chuse to rely on his own qualifications in those respects, he may easily apply my dilemma and my mathematical reasoning to the point in question, the relation between desire and judgement of preference; the combination of which two things constitutes a motive, according to the phraseology of the author of the remarks: and he will find it to be such as necessarily to imply the existence and occasional exertion of the self-governing power of the person, in order that the judgements of preference may be what we find them. Indeed for this purpose nothing more is required but a very slight change of expression (*desire* for *motive*, *judgement* for *action*) in SECT. VI.; for the first part of the dilemma, and in SECT. XVI. XX. and XXI. for the second part of it: and if he should be likely to bewilder himself by the use of such hypothetical expressions and nugatory propositions as those concerning the absolute force,

force, strength, or influence of desires in producing judgements, he will find, *mutatis mutandis*, in SECT. XVIII. and XIX. a full elucidation of those things.

The initial letters of the Alphabet will express the *judgements* (supposed to be known by consciousness) just as precisely as they would express the overt actions of a person, that certainly might be known by observation. The final letters of it will express the several *desires* that may be excited in a person, just as well as they did the *motives* about which I reasoned.

The relation between the *desires* X, Y, Z, and the judgements of preference or expediency A, B, C, respectively, that is, corresponding each to each, A to X, B to Y, C to Z, *must be* either a *constant conjunction*, (which fully implies the want of any self-governing power in the person or subject with respect to such judgements), or it must be not a *constant*, but an *occasional* and *separable conjunction*.

4 A 2

If

If the first part of the dilemma be chosen, the six canons or axioms resulting from the notion of constant conjunction, and stated in p. 172, and fully illustrated in the pages that follow it, must, in the first place, be either admitted or denied, before it be possible to reason on the subject: for all reasoning must ultimately rest on first principles, or acknowledged truths: and these canons are the first principles or axioms in this kind of reasoning. Any reasoner who chuses to deny them, should do it openly and explicitly; and when he has done so, I presume he will find but few persons disposed to reason with him: and most assuredly I should not be one of the few.

If he admit them, we may rationally proceed to inquire what the result *must* be in point of judgement of preference, in various particular instances, such as often occur in real life, or may be produced by study and contrivance, and which may be distinctly conceived and expressed; it being understood, that if our reasoning were to be stated fully, in the regular form of syllogism,

fyllogifm, one of thofe axioms fhould be the major propofition, general and affirmative; the inftance given, the minor, particular and affirmative; and that the conclufion may be left to the decifion of thofe who underftand the rules of logic, or indeed of any perfons who poffefs the ufual intellectual faculties of mankind.

To prevent (if it be poffible to prevent) any idle verbal difputes about the *reality* of thofe defires, the relation of which to judgements of preference we mean to afcertain, I beg it may be underftood, that we fuppofe the ftate, condition, or difpofition of the perfon or fubject, both as to mind and body, to be fuch, that every defire, about which we have occafion to reafon, may and fhall truly and *bona fide* take place in him, whether fuch defire be excited fingly, or along with one or more other defires; and this without regard to the degree or intensity of any one or all of them: that therefore all cafes of madnefs, delirium, drunkennefs, fever, ftupor, or other difeafe, and all fuppoftions of fuch intense appetites

tites or passions, like ravenous hunger, or furious anger, as may make a person insensible to or incapable of any other desire, are expressly set aside : and that we consider only men in their ordinary state, in full possession of their various faculties, susceptible of, and actually experiencing, every desire that we have occasion to state : For example, a porter waiting for his chance of his ordinary employment, and truly desirous to earn any and every shilling that may be offered him ; a simple traveller really desirous to preserve both his money and his life ; a rogue very desirous to escape from the torture, and very desirous to avoid being hanged ; a rake very desirous to re-establish his health and his fortune, but at the same time *bona fide* desirous to avoid swallowing nauseous drugs, and having a disagreeable old woman for his wife.

The distinct conception, and the acknowledgement of the possibility, of such cases, from the opposition of different desires, motives, or principles of action, are essentially necessary to my mode of reasoning

ing on this subject, just as the admission of the possibility of drawing a straight line from any one point to any other, or of describing a circle at any distance round any centre, is to the reasonings of geometers: and I should certainly have stated them formally as *Postulata*, if I could have supposed, that any intelligent or candid person would have hesitated to admit them, whenever, in the course of my reasonings, there might be occasion to refer to them. It is not yet too late to mention, that I do consider them as undeniable *Postulata*: I mean such as cannot be refused without a degree of absurdity and want of candour, as glaring and as extravagant as it would be to refuse the common *Postulata* of geometry. And I find now it is necessary to mention this explicitly, lest, by some new distinctions, or new meanings to old words, which I regard as no better than a kind of metaphysical legerdemain, the desires, the *things* about which I wish to reason, without caring by what name they may be called, should be conjured away from me, just as motives have been in the remarks under consideration, and I should
get

get in their stead some other word; a *vox et præterea nihil*. Of this indeed I find some very alarming symptoms in N^o 11. page 476. line 17. *et seq.*; of which more fully afterwards.

These things being premised, and my *Postulata* being supposed to be granted, I presume it will be admitted immediately, that the relation between *desires* and *judgements of preference or of expediency*, (N^o 5. line 9.), which *judgements*, (according to the phraseology of the author of the remarks), in conjunction with *desires*, constitute *motives* that are constantly conjoined with their corresponding *actions*, is not a constant but an occasional and separable conjunction. For though the result in the simple cases of only one *desire* being excited at once, might be foreseen *a priori*, and would be found on trial to correspond to the simple *formulae* $X \equiv A$, &c. the *judgement* always corresponding to the only desire that took place in the person who is to judge and to act; and though it *might be supposed* in all cases of the direct concurrence of two or more *desires*,

sires, and *would be found* in many of them, that the result, in point of judgement, would correspond to the canon $X + Y \equiv A + B$; yet it would both be foreseen *a priori*, and found on trial, that in numberless instances of the simultaneous application of two or more *desires*, either in *combination* or in direct *opposition*, the result would not correspond to the canons $X \sqcap Y \equiv A \sqcap B$, and $X - Y \equiv A - B$; for the *judgement* would be perfectly according to one of the *desires*, and not in the least according to the other of them. If any person should hesitate to admit this, let him consider, that it may easily be decided by open unequivocal experiment. For as the *judgement* according to the *desire* is a *motive*, and as a *motive* is constantly conjoined with its proper *action*, the *action* must correspond to, and be constantly conjoined with, every *desire* according to which *judgement* took place. The experiment proposed in page 226. may be tried by any person who is not confident that he can foresee the result of it, and who does not perceive, that in the ordinary conduct of life *desires* are not constantly

conjoined with *judgements*, so as to become *motives*.

Though the author of the remarks may not have foreseen the important consequences of this separability of *desires* and *judgements*, I presume he will acknowledge it at once; and perhaps had perceived it at the time he used the expressions, "till the understanding decides on its preference, or on the expediency of attempting the pursuit of it," (N^o 5.); for these expressions seem to imply the possibility and the frequency of the understanding *not* deciding on the preference or the expediency of some desires, as well as deciding on the preference or expediency of others: the latter is the separation, the former is the conjunction of *desire* and *judgement*, about which we are now reasoning.

Supposing, then, the separability of *desire* and *judgement* to be established, either as intuitively evident, or as ascertained by experiment, it must be evident, that, in this respect at least, what the author of the remarks calls judging, or the understanding

standing deciding on the preference of a desire, &c. agrees perfectly with what in common language is called *choosing*. Choice is an operation or modification of thought, according to one thing, and not according to some other, or preferring one and not another. Even in the simplest possible case of voluntary action, I mean that where only one desire, and one kind of action, are to be thought of, there is always the alternative of acting or not acting, determining or not determining, according to the only desire applied. Now, this is a kind of choice; in the language of the author of the remarks, it is a decision on the expediency of attempting the pursuit of a desire.

As it appears, then, that the relation between *desire* and *judgement* is not a constant, but an occasional and separable conjunction; we must next inquire, whether they are occasionally conjoined, or separated by mere chance, that is, strictly speaking, without any cause at all; or by some cause (such as we conceive a living person or agent to be) having power to

conjoin or separate them at his own discretion ; that is, to *judge* or *not to judge*, according to any *desire* applied. For it is self-evident, (as already mentioned, p. 342.), that such an occasional conjunction and separation cannot proceed from any cause that is constantly conjoined with its effect.

If the supposition of mere chance be chosen, (which is absurd in itself, as well as inconsistent with the fundamental principle of the doctrine of Necessity), we may then inquire what proportion in point of frequency the conjunction bears to the separation of *desire* and *judgement* : we may assume any proportion of frequency between them, and, on the principles of the doctrine of Chances, we shall immediately have, by necessary consequences, many extravagant and ridiculous inferences, too repugnant to the universal notions of mankind on these subjects to allow us even for a moment to doubt of their being false, or to make it necessary to try them experimentally : but let it be remembered, that this, if required, may easily

easily be done; for the *judgement* supervening on *desire* is a *motive* constantly conjoined with its corresponding *action*; and this action is an object of direct perception and observation.

Lastly, If *mere chance* shall be given up, and recourse shall be had to the supposition of some peculiar quality of *desires*, or some peculiar relation between them and *judgements*, in consequence of which *judgements* came to pass, in common cases, according to some *desires*, and contrary to others; and when this quality or relation was equal in two or more opposite or inconsistent *desires*, no *judgement* of preference *could* take place according to any of them; then it will appear by the arguments page 360. to 400, that there neither is, nor can be in *desires*, such a quality, or such a relation between them and *judgements*. And if any person should not understand, or should not like that mode of reasoning, he may have recourse to the reasoning employed page 424. to arrive at a conclusion, which he may try experimentally, if he shall think it necessary so
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to do.—The ultimate conclusion must be, that those *judgements* which supervening on *desires* constitute *motives* constantly conjoined with actions, do not come to pass in consequence of any absolute irresistible force or quality or relation of *desires*, but depend on, and necessarily imply in the person judging, some self-governing power with respect to such *judgements*.—Now, this is the other essential characteristic of *choosing*, in contradistinction to what is commonly (and therefore properly) called *judging*; or of a voluntary as distinguished from an involuntary action.

The practice of employing the term *judging* instead of *choosing*, is very improper, because it makes the expression of our thoughts ambiguous, and consequently our reasonings obscure and bad. It is by no means peculiar to the author of the marks; it has been adopted by many writers; it is common even in ordinary conversation to say, that a person thought fit or judged proper to act in a certain manner, when we mean to express, not his
involuntary

involuntary judgement, but his voluntary act or choice. It is a well understood piece of civility, to suppose a person's choice and actual conduct to be the result of his judgement, rather than of his unreasonable passions or caprice. In many cases the *choice* and actual conduct correspond to the involuntary judgement; but in many cases they are in direct opposition to it.

From want of due attention to these things, the maxim, *Voluntas sequitur ultimum judicium*, came to be admitted as a kind of axiom; and it was long held as the fundamental principle of the doctrine of Necessity. I am well informed, that MR LOCKE, in the first edition of his Essay, had adopted that erroneous principle: but soon discovering the error of it, he very candidly renounced it in the second edition. As I have not been able to procure a sight of either of those editions of his Essay, I cannot quote the precise passages. DR SAMUEL CLARKE, too, shewed that the maxim in question was fallacious and nugatory, forasmuch as
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what had been called the last judgement of the understanding was really the choice or voluntary determination of the person. I presume the author of the remarks had not been aware of these things, else he would not have betaken himself to this argument of the Necessitarians; which has in a manner been given up for half a century, in favour of the doctrine of constant conjunction.

In N^o 6. and the following paragraphs, he endeavours to avail himself of the maxim, That the decisions of the understanding (which is a very needless, and therefore improper metaphor for *judgements*) are involuntary.

Before this important maxim can reasonably be either admitted or denied, it is necessary to know exactly, how many and what sort of operations of thought are to be comprehended under the terms *decisions of the understanding*, or *judgements*: for these phrases, at the discretion of the person using them, may be employed to denote very different things or thoughts;
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some of which may be voluntary, and others not. I conceive even that some latitude in this respect is allowed in common language; and a great deal certainly has been taken by metaphysical writers. However, I can have no doubt, that, in strict philosophical language, the term *judgement*, or the metaphorical phrase *decision of the understanding*, should be used to denote certain thoughts only, such as opinions of right and wrong, expedient or inexpedient, good or bad, true or false, which are commonly reckoned involuntary; and which in reality are *almost*, but not perfectly so. They cannot be perfectly involuntary, for this plain reason, that even for these kinds of judgements attention is requisite, and attention is voluntary; not indeed perfectly, but in a great measure. To judge well and fairly on any point, a person ought to attend equally and impartially to all the considerations and circumstances relating to it which are known to him, whether they tend to make him judge one way or another. But if he has already taken a side, or wishes to judge one way rather than another, he *may* attend, and

if he be not very much on his guard, he naturally and probably *will* attend, chiefly or solely to the considerations in favour of that judgement to which he already inclines; so that his final judgement will be partly voluntary: “For none want reasons to confirm their will.” POPE.

For example, in belief, or the judgement of what is true or false, when a person is impartial, and equally attentive to every article of the grounds of belief, the result is quite involuntary, whether it be belief on one side or on the other, or only doubt, from the opposition of different articles of evidence. Hence we have axioms, demonstrations, and rules of logic, which reasonable and candid men never presume to controvert. But even in belief, as, for example, in judging of this controversy about the doctrine of Necessity, and of my mode of reasoning about it, a person, according to the side which he already favours, may either attend fully to every step of my reasoning, and yield to the influence of it, as being a series of strictly necessary consequences; or he
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may attend very little to my argument, and be eager to lay hold of every example, and to employ every expression, that can favour the opposite opinion; whether it be an objection to my argument, or whether it bear any relation to it or not: and, in consequence of this voluntary withdrawing of his attention from my argument, and giving of it to the ambiguous phrases and vague analogies on the opposite side, he may not feel the force or influence of it, though it were as complete a demonstration as I think it.

But if it be meant to express by *judgment* or *decision* what is commonly and properly called *choosing*, the maxim in question cannot be admitted: it is inconsistent with the very notion of *choice*. And more precisely, and in a way better suited to my mode of reasoning, by necessary consequences, and open experiment, I say, that if they are used to denote any thing that involves choice, or is constantly conjoined with or followed by it, the maxim cannot be admitted. For though choice and overt action often correspond to invol-

luntary judgement, yet they are often in direct opposition to judgement, or the involuntary decision of the understanding. As for example, in the case of *Medea*, so happily stated by OVID, that his lines are become proverbial, as expressing clearly a very common state of mind, and mode of actual conduct:

*Sed trahit invitam nova vis; aliudque cupido,
Mens aliud suadet. Video meliora, proboque:
Deteriora sequor.*

Here we have choice and action against involuntary judgement. The first line expresses, in strong metaphorical language, the desires: the second line expresses clearly the involuntary operation of thought, or decision of the understanding: *Deteriora sequor* expresses the ultimate choice and actual conduct according to the desires, and against the decision of the understanding. To call the *deteriora sequor* judgement, as well as the *video meliora, proboque*, in a strict philosophical investigation, the object of which is to ascertain the differences among certain operations

rations of mind, would be highly improper; and to suppose it involuntary, because it was expressed (no matter whether purposefully or accidentally) by a term (*judgement*) usually and properly employed to denote an involuntary operation of mind, would be absurd. The name given to it can no more affect its nature, than giving one individual the proper name of another can make them two one; or than extending the generic names of *Bird* and *Fish* to denote both those kinds of animals, can make birds fishes, or fishes birds.

If I were to employ the term *Will* or *Choice*, (or any other commonly used to denote the voluntary operations of thought), to express judgement, belief, or any other involuntary operation of thought, I dare say, neither the author of the remarks, nor any other person, would think it any proof of judgement or belief being voluntary. The case I here put will perhaps be thought extravagant; but it is a real one, and may be found in a book which is still regarded as good authority in point
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of English, and was once thought of great authority in some other respects: "For the good that I would, I do not; but the evil which I would not, that I do," Rom. vii. 19. — Here *would* expresses judgement, or the involuntary act of the mind, and corresponds perfectly to *mens aliud suadet*, and *video meliora, proboque*; while *would not* expresses will or choice, the voluntary operation of thought, and corresponds to *aliudque libido suadet*, and *deteriora sequor*. ST PAUL surely never meant to say, that he chose, resolved, and attempted to do the good, but could not accomplish it, as a man in a palsy might endeavour in vain to walk; nor that he did the evil in spite of his choice and attempts not to do it, as in certain diseases any attempt at the most proper motion with the hand will fail, and either the most ridiculous gesticulations, or the most painful convulsions, will take place in its stead. We conceive that he meant, that, notwithstanding his judgement of what was good and evil, "the sin that dwelled in him" made him *choose* and *do* the evil, and not the good. — As ST PAUL was not
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only a great Apostle, but also a great metaphysician, and had moreover a strong bias towards the system of Necessity, tho' on principles somewhat different from those that I have been considering, I trust his authority on this point will have great weight with all orthodox Necessitarians.

Nº 6.

The involuntary nature of the decisions of the understanding, or judgements, can be admitted only with the explanations and exceptions already mentioned; which exclude choice or determination from the class of judgements, or even from being constantly conjoined with, or always corresponding to, preceding or co-existing judgements. As to the author of the remark seeing no reason to doubt, that an opinion of what is preferable, or otherwise, is equally involuntary as a judgement of what is true or false, it must be his own fault, in not giving due attention to the many great and obvious differences between them; some of which have generally

rally been acknowledged as self-evident, and as such I have mentioned them in this Essay, pag. 12. 13.; and others, in SECT. VIII. pag. 209. 220. I have illustrated very fully; and I think it unnecessary to repeat here what is there said. The term *Preferable*, as employed in N° 6. is strikingly ambiguous; and the opinion expressed in the last sentence of it, concerning the variations which are said to occur in a person's (involuntary) judgments of what is preferable or otherwise, according to the state of his health, or other circumstances, appears to me altogether erroneous; but I forbear to enter on the discussion of these points, as not being essential to my argument.

N° 3. pag. 470. l. 13.—“ And then, *by having recourse to the known laws of physics*, it is proved,” &c.—By no means: I never dreamed of having recourse to the known laws of physics for any such purpose: I know well that it would be in vain to do so, and foolish to attempt it. To have argued, that because lifeless bodies had certain properties, and certain relations

lations to the causes of the changes of which they are susceptible, living persons must have the same properties, and the same relations to the motives of their actions; and that, because a certain result took place in certain cases in physics, a similar result in the actions of men must take place in similar cases of the application of motives, (which I presume is the meaning of the phrase, *having recourse to the known laws of physics*), would have been absurd. It would just have been falling into the same error that the assertors of the doctrine of Necessity have fallen into. But my plan, and my actual conduct, have been very different. I have had recourse to no laws of physics, nor to any laws whatever, but the laws of human thought with respect to the perception of certain necessary consequences, bearing that kind of relation to the notions of event, cause, constant conjunction, or occasional conjunction of these, *inertia* of the subject, and absolute irresistible force or influence of causes, that the theorems of geometry bear to the notion of quantity. Those necessary conse-

quences are found experimentally true in numberless instances in physics, but false, and even ridiculous, in numberless similar instances of the application of motives. Whence I infer, that the principles of *inertia* in the subject, constant conjunction of cause with event, and absolute irresistible influence of causes, from which they are all strictly deduced, *must* be false with respect to living persons, and the motives of their actions, but *may* be true, and *probably are* true, with respect to lifeless bodies and physical causes and effects. To give a different account of the *object* or of the *manner* of my reasoning in this Essay, is to misrepresent it.

I am not perfectly sure, but I presume, that the author of the remark alludes to the composition of motion, as a law of physics to which I had recourse. If so, he is quite mistaken. In the first place, It is not called nor thought a law of physics, any more than the fifth proposition of EUCLID is called or thought an axiom of geometry. It is given by NEWTON as a corollary, a kind of theorem, resulting

ing from certain principles, more general and more simple, which are called Laws of Nature. In the second place, So far am I from having recourse to it as an ultimate principle or law of physics, that I have offered a demonstration of it, different from NEWTON's, and, as I think, more complete than his, as it specifies all the laws of physics, and of human thought, on which the truth of that theorem as a matter of fact, and our belief of it as a necessary truth, demonstrable from certain principles, ultimately depend. The application of the term *Law* in this sense is no doubt in some measure arbitrary; it is a metaphorical expression, employed to denote some very general simple facts with respect to the properties and relations of bodies; which can no more obey laws, in the literal sense of this word, than they can understand them, or rise in rebellion against them. But some regard is due even to the established metaphorical sense of the term; and I dare say the author of the remark himself would be sensible of the impropriety of speaking of the cur-

vilinear path of a projectile, or of a planet, or of the formation of a rainbow, as *laws* of physics: yet they are just as much so as the composition of motion.

N^o 9.

“ If the Necessitarians must yield, that every apprehension and desire of attainable good must have an influence on the understanding, *in a manner perfectly similar to that of forces in physics*, in order to be intitled to maintain, that its operations proceed by immutable laws, *and that the relation of constant conjunction takes place among them*, the substance of the argument in the Essay would, I think, still remain solid, notwithstanding what has been remarked.”

Allowing the affected use of the phrase, “ apprehension and desire of attainable good,” (instead of motive), and the improper and ambiguous use of the word “ understanding,” (instead of the agent, or person to whom the motives are applied), to pass without discussion, I must observe,

observe, that there is plainly insinuated, for it is not directly asserted, in this remark, a very erroneous and unfavourable, or, in one word, a most unjust account of my argument and my conclusions in this Essay. Any person reading N^o 9. and knowing nothing more of my argument than what he could gather from that remark, regarded as an objection to it, would surely think that I had been reasoning about the operations of the understanding; whereas I was reasoning only about motives and voluntary actions, which are as different from operations of the understanding as seeing is from hearing; or understanding from smelling. Such a person would also conceive, that I had been asserting the mutability of the laws of the operations of the understanding; which is an absurdity that I never dreamed of, and of which not one word is said in the whole of my Essay. Even allowing the term *Understanding* to express, not what it commonly does, but choice and voluntary action, (which is a licence just as needless, and as unavailing, as it would be to employ the term *Smelling* in the same meaning),

ing), still it will be found, that I never call in question the immutability of the laws of choice and voluntary action. I only endeavour to ascertain what those laws (or general facts) are; particularly whether the agent, or person choosing, is merely the *Subject* in which the choice comes to pass, or the *Author* of the choice, and whether the relation between motive and voluntary action be a constant conjunction or not. Whatever those laws might be found in these and many other respects, I could have no doubt of their being the same in all ages and countries, and immutable, at least by any human power; whatever they might be as depending on the will and power of the Supreme Being, who has made man what he is. Such a reader would suppose, too, that I had confounded the notion and question concerning the immutability of the laws of the understanding, with those of the constant conjunction among the operations of the understanding, which I had never done; and that I had denied the constant conjunction of the operations of the understanding, which, far from either

ther asserting or denying, I had not even considered nor mentioned.

But, above all, such a reader of this remark (N^o 9.) would understand, that I had maintained, and most particularly insisted on the point, that “every apprehension and desire of attainable good (that is, every motive) had an influence on the understanding, (that is, on the person who understands, judges, chooses, and acts), *in a manner perfectly similar to that of forces in physics*; and that this principle, of the perfect similarity of the influence of desires, and that of forces in physics, was essential to my argument. This insinuation is too plain to be misunderstood, and too important to be overlooked; and from the manner in which it is expressed, and from the use that is made of it, for it is the basis of all the reasonings about the understanding and will that appear in the remarks, it seems not to be accidental, but intended. But nothing can be conceived more groundless in itself, or more unjust with respect to me. From the way I state the question,
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and bring it to the form of dilemma, from the way in which my axioms or canons are expressed, from the whole tenor of my reasoning, and from the numerous illustrations that have been given of it, it *must* appear, that my reasoning and my conclusions are quite independent of all speculations with respect to *perfect similarity*, and to numberless *supposeable* or *real differences* of *manner* in the influence of *motives* and of *forces*. Nay more, all this has been strongly and repeatedly mentioned in the course of my Essay, (as for example in pag. 84. 85. 86. 232. 233. 332. 336. 453. 454.), with a view to prevent such *mistakes* as those at present under consideration: but this I find is impossible. If my argument had depended, according to the insinuation N^o 9. on the assumed principle of *perfect similarity of manner*, it would not have deserved the name of reasoning; for such a principle could never be admitted, as it is intuitively false and extravagant.

If such misrepresentations of my mode of reasoning had occurred in a desultory
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viva voce argument, they might have been regarded as mere mistakes, from haste, and imperfect expression, and imperfect understanding of the argument, by one or both of us: though it must be observed, that mistakes always on one side, and always unfavourable to the person mistaken, are very suspicious, and, to say the truth, barely credible. But in deliberate reasoning in writing, or in print, as in the present case, where every part of the argument is expressed accurately, and illustrated fully, and remains even for months under the inspection of the person who means to object to it, and who has it in his power to take the very words of any observation, or opinion, or argument, or principle, which he means to controvert, (as the author of these remarks has very properly and candidly done in N^o 12.), there can be no mistakes; and any unjust and unfavourable account of the reasoning, given with a view to found objections to it, must be regarded as wilful misrepresentation; which is equally uncandid and unavailing. It is, however, so common in controversies, even among

philosophers, that it is generally expressed, and reprobated, by the well-known and appropriated metaphor, of setting up a man of straw, in order to have the pleasure of knocking him down. Such *mistakes* in *viva voce* disputation, especially if asserted confidently, and in a boisterous overbearing manner, may procure to the party employing them the transient appearance of victory in the argument, by confounding and putting to silence his opponent, who, if he has any sense at all, will not persist in reasoning with one that cannot or will not understand what he says. But in deliberate written discussion, addressed not to one man, or one company, but to men of science in general, in which the object is not victory, but the investigation of truth, and the advancement of science, they cannot serve even that little purpose, nor indeed any purpose that I can conceive. This I mention purely for the sake of science, and not for the sake of those who may choose, and who are heartily welcome, to amuse themselves in that way; nor yet for my own sake, as I am sure I shall easily be believed, and shall not even be thought particular

particular in my taste, when I declare, that in all cases, literal or metaphorical, in which I may have occasion to be knocked down, I should choose to undergo that ceremony by proxy, as in the present case, rather than in person.

With respect to that extravagant and needless *petitio principii*, "That *desires* must have an influence on the understanding, in a manner perfectly similar to that of forces in physics," which, in N^o 9. is so unaccountably represented as necessary to my argument, and so by implication is imputed to me; I beg it may be observed, that, far from having assumed any thing so unreasonable and unnecessary, and so evidently false, I have assumed no *petitio principii* whatever. The nature and form of my argument, which is indirect, or *ad absurdum*, and a dilemma, made all assumptions of that kind perfectly needless. This is mentioned expressly, page 79. line 10. *et seqq.*; but it has not been attended to by the author of the remarks. Those who wish to judge of my reasoning, will find no *petitio principii* in it with re-

spect to the *manner* of the influence of *motives* and of *causes*. They will not find themselves called upon to admit *any* thing till it be shewn, either intuitively or by a short series of necessary consequences, that it *must* be true, forasmuch as the direct contrary of it is false or absurd.

Thus they may deny, and all Necessitarians certainly will deny, my proposition page 171; but to deny *it* is to assert the direct contrary of it; for such assertion and denial are correlative notions, and convertible expressions. That *contrary* is the principle from which I reason *ad absurdum*.

They may next take their choice of the two suppositions, that of constant conjunction and that of separable conjunction, as the relation between cause and effect, motive and action, respectively; it being previously settled, both by verbal explanation, and by particular instances and illustrations, that by *conjunction* is meant the coming to pass of effect, and the doing of overt action, corresponding
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to the causes or to the motives applied; that by *constant* is meant *this* always being the case; by *separable*, *this* only sometimes being the case.

If they choose the supposition of constant conjunction, they should next consider the axioms resulting from it; and they *must* either admit them as expressed by X and Y, A and B, without regard to similarity or difference, or any circumstance of manner, and indifferently with respect to causes and effects, motives and actions, or they *must* deny them. If they choose to deny them, they can proceed no farther in reasoning with me; but will have the pleasure of maintaining a direct contradiction in terms, to wit, that effect comes to pass corresponding to a cause, and that action is done corresponding to a motive applied, when no effect, and no action corresponding to such cause or motive, take place.

This the author of the remarks, who wishes to maintain the principle, or rather to retain the expression, of constant conjunction,

junction, seems to have been aware of; and he has employed a very singular expedient to avoid asserting such palpable contradictions, N^o 11. p. 476, l. 17. *et seqq.* “If it is asked, What becomes of the appetite for the half-guineas? I answer, That it *has had all the effects that*, by the immutable laws of the understanding, *it was fitted to have.*”——This vague and ambiguous expression is a mere evasion, and an attempt to confound our reasonings on the subject, by employing the same phrase to denote two things, not merely different, but diametrically opposite, and things of such importance, that the whole reasoning in the dilemma ultimately depends on our conceiving them clearly, and always expressing them distinctly. “All the effects it was fitted to have,” may mean no effect at all, or effects totally different in kind, as well as in degree, from what it would have had at another time, or at that very time, if no other motive had been applied, nay, even though many other motives had been applied, provided only the person had chosen and acted according to it. Let us consider,

sider, then, what these effects are which it is said are all it is fitted to have. "It was *felt*." The feeling of an appetite, desire, or motive, is the same with the existence of it: a desire that is not felt, is as arrant nonsense as a pain that is not felt; and to represent the feeling of a desire as the effect of it, is as nugatory as to call feeling an effect of pain. "*Observed*" only another word as nugatory as *felt*, when employed to denote a supposed effect of a desire. "Its inferiority to a desire, the gratification of which was incompatible with it, perceived:" A new metaphor used to signify the *not* willing, or choosing, or deciding, or judging, according to the desire; and precisely what in this investigation is reckoned the *no* effect or influence of a motive, and, in my phraseology, is the *separation* of motive from its corresponding judgement, choice, or will; which, however, I avoid reasoning about, as I prefer the ultimate overt act for the subject of observation and experiment. If the author of the remarks has any good reason for wishing to call the *feeling* and *observing* a desire, and *perceiving*
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its inferiority to another incompatible with it" all the effect it is fitted to have, he should be gratified in his wish, though it must appear an odd one: but then care must be taken not to express any thing else by the same phrase; particularly never to employ it to denote the perceiving the *superiority* of any desire, and judging, willing, and acting according to it, and never to mistake *these things* for the effects of such desire, and all the effects it was fitted to have; but, on the contrary, always to regard *these things*, which are the opposites of the others, as *no effects* of such desires as they correspond to; and, in my phraseology, to call them instances of the separation of motive and action. And then my mode of reasoning, *mutatis mutandis*, that is, interchanging or reversing the meanings of a few phrases to which I have no particular attachment, will still remain valid. The dilemma depends not upon the *phrases*, constant or separable conjunction, having or not having effect, or all the effects any thing was fitted to have, but on the *notions* of *event*, whether effect or action, *always* or only

only *sometimes* coming to pass, *according* to every cause or motive applied.

These two notions are essentially different, and necessarily imply very different consequences; which may be traced *a priori* by strict reasoning, and may be tried experimentally. For the purpose of such reasoning, it is requisite that the two notions be uniformly expressed by different terms, or symbols, visible or audible: but it is of no moment what these terms or symbols are, provided only they be well explained and illustrated, and each of them be always used in but one meaning. *With* such explanation and care, the letters P and Q, or the words *Beef* and *Pudding*, or any two new words that the most whimsical philosopher could contrive, would completely answer every purpose of good reasoning; *without* such explanation and care, no words nor phrases that could be contrived would enable us, or indeed allow us, if we made use of them, to reason strictly and distinctly about the two notions, and their respective necessary consequences.

It is unreasonable in the highest degree, to call "perceiving the inferiority of a motive, and judging another preferable to it," such motive having effect, and all the effects it was fitted to have; because it is contrary to the established usage of language, and to the analogy, always to be acknowledged, between the relation of motive and action and that of cause and effect in physics; and also because it tends to prevent us from distinguishing, as we should do, *that kind* of effect of motives from the *other kind* of effect of them, analogous to the effect of physical causes, and shewn by voluntary action being done according to them. But allowing them both to be called effects of motives, it must be allowed that they are of very different kinds; and that they might be, and for the purpose of distinct reasoning ought to be, expressed by different *specific* or *trivial* names: For example, let one of them be called *superior*, and the other *inferior* effect. This being explained, we may reason about them as strictly as before, and will soon arrive at the same ultimate conclusion.

The first difference we shall discover between the relation of motive and action and that of cause and effect in physics, will be, that in the latter the effect *seems to be* always of one kind only, to wit, *superior*; while in the former it is *certainly* sometimes *superior*, sometimes (indeed much oftener) *inferior*.

Next, we must inquire how this comes to pass, whether it is by a self-governing power in the agent, in consequence of which, though he cannot hinder every motive applied to him from having all the effect it was fitted to have, he can, at his own discretion, make that effect *inferior* or *superior*? or is it by mere chance that the effect, constantly conjoined with the motive, is sometimes of the one sometimes of the other kind? Or does this depend on any absolute force, or influence, or quality, of the motives, or on any relation of them to one another, and to the person?

The observations and reasonings in the sixteenth and following sections, (which,

with only a trifling change of terms, are still perfectly applicable to these questions and suppositions), will shew, that the occasional variety in the effect of motives is not a mere matter of chance, and does not depend on any absolute force of them, but implies the existence and very frequent exercise of such a self-governing power in the agent.

The ultimate conclusion will be, that the liberty of human actions, and the difference between the relations of cause and motive, essentially consist in this, that there is in a living person, and not in a lifeless body, a power of making the effect of any cause applied, *superior* or *inferior*; which, though different in *sound*, is the same in *sense* with making such cause have effect or not have effect.

But to return to the consideration of all the effects of a motive or desire according to which a person does not act, p. 476. l. 25. "that gratification (i. e. of another desire) judged preferable to it accordingly." This (due allowance being made for
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the peculiar phraseology of the author of the remark) is just what we usually call the effect of such *other* motive, and the want of effect of that one whose effect, on the supposition of constant conjunction, we were inquiring after.

To this enumeration of the effects of a desire, which we should be apt to think had none at all, is subjoined a very important, but inadmissible hypothesis, intended, I presume, to prevent any further inquiries about the desire and its effects; "and it then probably ceased to exist, and was forgotten." This is in the highest degree improbable, indeed scarce credible, even in the case stated, choosing to earn a guinea rather than half a guinea. To me it appears much more probable, that the porter, though he would prefer the guinea, would still feel a good appetite for the half-guinea, and that he would remember it as long as he lived.

But even if we could suppose, that the porter should in a moment cease to hunger after the half-guinea, and completely forget

forget every circumstance about it, it will be difficult or impossible to apply the same arbitrary hypothesis to every case of $X - Y$, where the result is A , instead of $A - B$. When a person endures the toothach for a long time, rather than submit to the operation which would give him relief, does the pain really cease to exist? Does the patient cease to feel it? Does he *bona fide* forget it? Can he, with a safe conscience, declare, that he has no abhorrence or dislike of it, and no desire to be freed from it? If these things are so, they will be joyful tidings to many people, who must impatiently wish for the confirmation of them: they will likewise afford some good corollaries, extremely comfortable to those who are afflicted with the stone.

With respect to the use which I have made of the phrase *constant conjunction* in my argument, it has been uniformly the same, both when it was applied to motives and actions, and when it was applied to physical causes and effects; namely, to denote the ultimate visible effect in the one relation,

relation, and the ultimate overt action in the other, *always* corresponding to, or being according to, any and every cause or motive applied. This uniformity of the meaning of it is essential to my mode of reasoning; and, at any rate, I should have thought the using any such phrase in two or more different meanings in the same treatise, absolutely inconsistent with every kind of good reasoning. The only meaning in which I have used it, is that in which (for reasons fully stated already, p. 28. 29. 30. 142.—146) I conceive MR HUME, the introducer of it, and DR PRIESTLY, one of the latest and greatest writers on the controversy about liberty and necessity, to have always used it; and certainly my meaning of it corresponds perfectly with all the instances and illustrations of their system which those authors have given, several of which have been already quoted in this Appendix, (p. 542. to 546.)

It was not only unnecessary for my mode of reasoning, but absolutely inconsistent with it, to lay any stress upon, or even

even to take into consideration, the circumstances of *manner* of the constant conjunction, about which I reasoned. My plan was, to reason by necessary consequences from the principle to be refuted, to conclusions that might be tried by open experiment, without making any appeal to consciousness, or leaving any room for doubt or conjecture. But this could be accomplished only by attending to the ultimate result in visible effect or overt action, about which there could be no dispute; while, with respect to the *manner* in which that result came to pass, there might be everlasting altercation.

Let the *manner* of the *conjunction* of cause and effect in physics be supposed as different as possible from the *manner* of the *conjunction* of motive and action, only let the conjunction in both relations be *constant*, and the whole of my reasoning from the dilemma and axioms to the last inference must remain unshaken, and all my conclusions will be found such as may be tried experimentally: For example, let the manner of the conjunction of cause and effect

effect in physics be such that there is but one step between them, and that one a mere change of state in body, and in no degree intellectual: let the manner of the conjunction of motive and action be such, that there shall be always ten thousand steps between them, every one of which is purely intellectual, or a process of thought, not connected with any change of state in body; and let these steps be called *Understanding, Intelligence, Apprehension, Judgement, Will, &c. &c.*; and let every one of them be a fit subject for endless dispute, requiring always appeals to consciousness; still, if the conjunction of motive and action be *constant*, the action corresponding to the motive must take place, as invariably on the application of it, as if there had been but one step between them: for its not taking place in any case, would be an unequivocal instance of the conjunction between them not being constant, but separable, and in that case being actually separated.

Were we even to suppose, that by the interposition and co-operation of some

other *kind* of cause, (as, for example, an Agent or living Person), the whole chain or series between the motive applied and the ultimate overt action performed, should be varied on different occasions, being sometimes a train which (to avoid all idle disputes about words) we shall express by G, H, I, K; at other times a different train, which we shall call P, Q, R, S; still it must be evident, that, whichever of these be the interposed train, if the first and last steps of it (X and A, Y and B, &c. respectively) be constantly conjoined, the result from the simultaneous application of X and Y must be what I have specified in the axioms; for the want of either A or B in the ultimate result would be *ipso facto* proof of a separation having taken place, contrary to the principle of constant conjunction.

The author of the remarks must surely have attended but very little to my instances and illustrations, and must have had but a very imperfect and erroneous notion of my plan, and of my principles of reasoning, when he hazarded the assertion

tion in the beginning of N^o 9. that "the question, therefore, turns on the nature of the operations of the understanding." This is perfectly groundless: they may be whatever he pleases to call them, without in the least affecting my argument, which I have *purposely* taken care to make quite independent of them.

As little was he aware of the nature and force of my reasoning, when he employed, in answer to it, such vague, hypothetical, and metaphorical expressions as the following, "That the *will* is not, and need not be exposed to such combinations or oppositions of influences," N^o 4. — "That a *judgement* will never be *pronounced* by a person in favour of two pursuits, at one and the same time, that are incompatible," N^o 7. — "Since the *act* of the *will* depends on an *operation* of the *understanding*, which is itself involuntary, and *excludes* all those *absurd* combinations of influence alluded to," N^o 8. — "The *intelligence* of the *mind* renders the combination impossible," N^o 11. l. 16. — "The sufficiency of the *understanding* for this operation (judging one pursuit *eligible*,

without absurdly combining it with another) seems to be the natural result of its *intelligence*, which *differences* that faculty so infinitely from every thing that is *exposed* to the *influence* of external force," N^o 12.—"If the *acts* of the *will* are not *determined* by the *judgements* of the *understanding*, but by a self-governing power, which may *act* without motives," &c. N^o 16.

It must be obvious to every person, that the needless use of these expressions tends greatly to perplex and to frustrate our reasonings, by withdrawing our attention from the real acts and operations of the *only agent* we have to reason about, I mean the *person* to whom the motives are supposed to be applied; and by making us attend to the *fancied acts* of many *imaginary agents*, such as will, judgement, understanding, power, &c. This is mere metaphor, and a kind of poetry; it is "giving to airy nothings a local habitation and a name." They are as truly imaginary beings as the Sylphs and Gnomes, who make so great a figure in the *Rape of the Lock*; where indeed they are in their proper

proper place: Not that I think metaphors can be, or ought to be, confined to poetry alone; the poverty of language makes them necessary, both in common discourse, and in some measure perhaps in scientific investigation. And even if a language could be contrived, both for the purposes of common life and of science, as precise and literal as the language of EUCLID, I believe few people would use it: it would be exceedingly dull; for nothing contributes so much as the occasional use of metaphors to adorn, to enliven, and to enforce the expression of our thoughts. But whatever use we may make of them, we should at least remember, that they are but fictions; and that to attempt to avail ourselves of them, as if they were literal expressions of philosophical truths, is as unreasonable as it would be to transfer the machinery of the *Rape of the Lock* to the intercourse of real life. Every body is pleased with the disposition that *Ariel* makes of his flimsy legions, and approves of the employment of the fifty chosen Sylphs, who are stationed to guard the petticoat of *Belinda*. But in
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the actual intercourse of belles and beaux, the former have no such airy guards to defend them: if due care be taken of the petticoats, the belles, not the Sylphs, have the praise and merit; if any sinister accident befall them, the belles alone must bear the blame. To attribute agency, and praise or blame, to their or to any person's understanding, or will, &c. &c. for their conduct in any case, is almost as far removed from literal philosophical truth, as it would be to attribute such agency and praise or blame to the Sylphs and Gnomes.

The only instance I can at present recollect of this kind of attempt having been openly and avowedly made in a serious discussion, is that in the history of *John Bull*, when he was endeavouring to settle accounts with his friend *Nic. Frog*. *John* found always in *Nic.*'s accounts two swinging articles to *Major Ab.* and *Major Will.* which he could not understand.

“ *John Bull.* But who the devil are those two *Majors* that consume all my money?

ney? I find they always run away with the balance in all accounts.

“*Nic. Frog.* Two very honest gentlemen, I assure you, that have done me some service. To tell you plainly, *Major Ab.* denotes thy greater *ability*, and *Major Will.* thy greater *willingness*, to carry on this law-suit. It was but reasonable that thou shouldst pay both for thy *power* and thy *positiveness*.

“*John Bull.* I believe I shall have those two honest *Majors* discount on my side in a little time.”

I would by no means insinuate, that either the author of the remarks, or any other metaphysicians, have borrowed their *Dramatis personæ*, Will, Understanding, Power, &c. from worthy *Nic. Frog*; but it is plain, not merely from the similarity of their names, but from the striking family-likeness among them, that their personages and his are very near akin; though perhaps they never met before: and I am happy in this opportunity of introducing

roducing them to each other's acquaintance.

If I, a Physician, in reasoning on these subjects, had endeavoured to avail myself of the different organs of the human body, the *instruments* of all our actions or operations, both intellectual and corporeal, and had attributed agency of various kinds, not to the *person* having the organs, but to the brain, and nerves, and tongue, and stomach, and muscles, and hands, and feet, as the author of the remarks, a Pneumatologist as it appears, has done with respect to the abstract notions of the different *faculties* of the human mind, such as, Understanding, Will, &c. he would certainly have thought my conduct unreasonable and uncandid: As, for example, if I had maintained, that it was not the person, but his brains, that kept his stomach from being loaded with improper food, his feet from walking over a precipice, his hands from picking and stealing, his tongue from lying and flandering, when motives or temptations, and opportunities for such *actions*, occurred; every
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body, I think, must regard such a mode of reasoning as mere evasion and arrant trifling; yet it would be a kind of metaphor very near akin to the one under consideration, and just as much to the purpose. We are not reasoning about the conduct of men without brains, nor about men without understanding; but about men who have both, and who could neither judge nor act as they do without both; though neither their brains nor their understanding can act for them. And we are inquiring, whether they, even with the help of brains and of understanding, can act as we see them do, unless motives were separable from their corresponding actions, and they *had the power*, that is, *were able*, to separate them occasionally.

But, disregarding the full literal meaning of the metaphors employed, we may consider what *must be supposed* the philosophical meaning of such expressions; as, for example, in the end of N° 8. and beginning of N° 9.

Influence is ambiguous : it may mean either a person's feeling the desire or motive supposed, that is, having them applied, according to the *postulatum*; or the effect of such motive, in choice and overt act. If it mean the former, it cannot be excluded by the understanding, or by any of its operations. It is implied in the very notion of motive or desire. If it mean the latter, then to exclude the combination of influence (whether absurd or not) in any case, is to separate one or more of the motives applied from its proper action or supposed effect.—No action being performed according to a certain motive,—such motive having no effect,—the influence of it being excluded,—the combination of its influence with that of one or more other motives being rendered impossible,—and its being separated from its proper action,—are phrases perfectly synonymous and convertible, as will appear from the cases (*instantias particulares earumque series et ordines*) of which they may be predicated indiscriminately. It is indifferent for the purposes of good reasoning,

reasoning, and especially of my *kind* of reasoning, which of them be employed.

Even if we should agree to speak in metaphor, without necessity, on this subject of strict reasoning, we should soon find, that on many occasions the supposition of the understanding *excluding*, or *rendering impossible*, the influence of certain motives, is improper in this respect, that the *exclusion* or *separation* which takes place is often not according to the judgment or decision of the understanding, but directly in opposition to it. In the case of a porter earning a guinea by going one way, and disregarding half a guinea which he might have got by going a different way, both the *action* and the *exclusion* of influence are according to the understanding; but in the case of *Medea*, and all like it, both the *action* and the *exclusion* are against the understanding. It would be nearer the truth, though still a very inaccurate mode of speaking, to say, that in such cases the will excluded, or rendered impossible, the influence of certain motives on the person, or his understanding,

derstanding, &c. than to attribute such exclusion to the act of the understanding.

The author of the remarks must certainly have forgotten the important difference between what is strictly speaking *impossible*, and what is only repugnant to vulgar prejudices or common sense, when he called such a result as that of going in the diagonal, and not in either of the sides of the parallelogram, in the case of the porter, (p. 226. referred to in N^o 11.), *impossible*. No understanding or intelligence of the mind can render it *impossible*; like the being in two places, or the moving in two different lines at once.

The vulgar might with some reason call it absurd and ridiculous, as being contrary to *their* notion of the relation of motive and action. But the author of the remarks, and all other Necessitarians, far from having any reason to think it *impossible*, are not even intitled to call it *absurd* and *ridiculous*; for it corresponds perfectly to *their* notion, though not to the vulgar notion,

notion, of the nature and influence of motives: Nay more, it is a result *precisely* of the same *kind* with that from two equal and opposite motives applied to the same person at once, and well illustrated by the supposed conduct of the hungry ass between two bundles of hay; which all orthodox Necessitarians hold as fast as any article of their creed. Both remaining inactive or at rest, when under the influence of two equal and opposite motives, and moving in the diagonal in the case of the porter as stated by me, are so extravagantly inconsistent with the vulgar, proper, notion of the relation of motive and action, as to be ridiculous: both of them are perfectly consistent with the notion of the absolute irresistible force of motives; both of them are necessarily implied in, or deducible from, the notion of constant conjunction; both of them are perfectly analogous to what is well known experimentally to take place in lifeless bodies under the influence of equal, opposite, or of combined causes of motion; both of them, I am well convinced, will be found false on trial; yet those very philosophers who (like DR

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PRIESTLY in the passage already quoted, p. 545. and 546.) assert the one of them as a familiar and well-known matter of fact, and even as a self-evident necessary truth, take great umbrage at the other, and reckon it a kind of insult to their understanding; and call it impossible; nay, give it some very hard words, such as absurd and ridiculous, &c.; which I, as the discoverer of it, cannot fail to take very much amiss. What, then, is the difference between the two cases, in consequence of which those philosophers so boldly assert the one, and so obstinately deny the other, without even the ceremony of a trial? I solemnly declare, that I can conceive no reason but one, namely, that the latter may in a moment be decided by open unequivocal experiment, in such a manner as to exclude all hypotheses, and all appeals to consciousness with respect to the reason of its failure; while the former is of such a nature, that, though in the first instance it may be brought to the test of experiment, yet it will admit of an arbitrary hypothesis, involving an appeal to consciousness, to account

count for the result of the experiment being contrary to the doctrine asserted; which is always foreseen and expected *a priori*.

With respect to the last sentence of N^o 9. I need only observe, that as I am not disputing about *words*, but *things*, I care not whether the influence of motives be called "strictly speaking uniform," or not; but their "uniform influence," if it is to be called such, appears plainly to be a very different kind of "uniform influence" from that of physical causes, when applied to lifeless bodies. And as to the former being "subject to very different laws" from the latter, it is a very allowable metaphorical expression, denoting in general what I have been maintaining and demonstrating particularly in my Essay. *Laws*, in such investigations as these, mean ultimate general facts: some of these laws, or facts, which are different in the two relations of cause and motive, I have ascertained; especially the occasional separation of the latter from its action, its constant reference to another concurrent

concurrent principle of change, which I have called a self-governing power in the agent or subject, and the want of any such concurrent principle of change in the lifeless subject of mere physical changes.

N^o 10.

This remark may seem to deserve peculiar attention, as it insinuates a kind of appeal to observation and experiment, with respect to the uniformity of a person's *judgement* (which, in the language of the author of these remarks, means *choice*, or *voluntary determination*, followed by and shewn by overt action) in the same circumstances.

Supposing, for the sake of argument, what I cannot admit in point of fact, that mens *judgements* and overt actions would be found always the same in the same circumstances, *no* just inference of *necessary* consequence with respect to the question at issue could be drawn from it.

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The person may have acted, in affairs of importance, according to motives of duty, or of interest, or of pleasure, either applied singly, or in all varieties of combination and opposition; and on trifling occasions, he may have acted without much attention or exercise of the self-governing power, from instinct, or from habit, or from the first thought that occurred to him in that involuntary train which is always, or almost always, going on. I see no reason to expect, in general, that a person's conduct in the *same* circumstances should be different at different times. To suppose or expect, that a person having a self-governing power should do his duty, or consult his interest, or follow his pleasures, at one time, and at another time, in the same circumstances, should disregard duty, interest, pleasure, &c. is to confound the notion of self-governing power with the improper and fantastical use of it, and with the *want* of any uniform relation between motives and actions; which is uncandid, as well as unreasonable, as is fully stated in SECT. I. p. 4. 5. 6. This, however, the author of

the remarks has not attended to, as appears by the second sentence of N^o 16. My mode of reasoning is independent of the result of such observations and experiments as we are now considering; for it shews, that the actions of men *could not be* in ordinary cases what we really find them, whether more or less uniform, without the concurrence of a principle of change different from what appears to have any share in the changes or effects observed in lifeless bodies.

The reference to the *supposed* uniformity of mens *judgements* and actions in circumstances *supposed* the same, is in another respect fallacious and nugatory: for let the result of any observation or experiment be what it will, or what it can be, I mean in favour of the uniformity alleged, or against it, still room is left for hypotheses to explain it away; and these hypotheses are endless, as well as useless; for they require appeals to consciousness.

If the result be the same at the subsequent

quent trials as at the first, it will be held as clear proof of the doctrine asserted; if it be different, it will be immediately supposed and asserted, that the circumstances, though seemingly the same, were really different; that some new motive, perhaps not discoverable by the observers, the conductors of the experiments, had occurred, and produced the variety in the result. According to MR HUME, "the fantastical desire of shewing liberty" must be reckoned the new motive in such a case. This arbitrary hypothesis is just as unreasonable as the converse of it would be; I mean, as it would be to assume the supposition of the interference of a new motive, though unknown to us, in those cases where the result, on repeated trials, was the same as on the first; and thence to argue, that there must be a self-governing power in the person to prevent the effects or influence of certain motives, (that is, to separate them from their proper actions), so as to make the result, in action, the same, while the circumstances, in point of motives, were very different. The two cases, of different actions in the

same circumstances, and of the same actions in different circumstances, are strictly correlative; both suppositions are equally easily made, and both are nugatory, as requiring appeals to consciousness, and consequently being subject to arbitrary assertion and denial. But were it not for this last circumstance, that is, could they both be ascertained beyond doubt or dispute, they would afford the means of settling *demonstrably* the ultimate philosophical question at issue; which the mere uniformity of result in action, from circumstances *really* the same in point of motive, could *never* do.

It is at least a conceivable case, that a person having a substantial motive for acting in the way he had done before, may feel a desire (fantastical or rational) to shew his liberty, and may think this can be best shewn, or shewn only, by acting differently from what he had done before. The philosophical question, then, comes to be, *not*, Whether he will act or not act as he did before? but, How will he

he be able to act according to the old or according to the new motive? What is the nature of the influence of motives? What are the general laws or facts with respect to it? What is the relation, not merely of the motive according to which he acts, but of both the motives, and of every motive that he feels, to his voluntary determination and action? Is it a constant conjunction? Is it a separable one? Is the separation by chance, or by a certain law? Is there any absolute force or influence of motive, so as to exclude self-governing power?—In short, the whole reasoning of my Essay applies strictly to the hypothesis arising out of the *alleged* uniformity, and real or apparent difference of actions in the same circumstances, and the very *certain* sameness of actions in different circumstances. But I think it better to avoid such hypothetical and disputable motives as that supposed fantastical desire of shewing liberty, and take such as may easily be applied, and may be certainly known, such as the offer of money to a porter, on condition

tion of his doing any ordinary piece of work.

N^o 10. line 22. "We cannot trace back the route of the die in a dice-box," &c. Why the route of a die in a dice-box, rather than that of a ray of light in a glass prism, or in a telescope, or of a projectile through the air, or of a ship sailing in a current? Is it that some philosophers love darkness rather than light, because it favours their system more? I suspect so very strongly; for I cannot think any writer, whether able or not, would ever have had recourse to so complicated a case, and one so much out of our sight, and out of our knowledge, and out of our power, as the motion of a die in a dice-box, if his object had been only the investigation of truth, and a fair illustration of what takes place between the application of motives and the voluntary overt actions of mankind.

But though it is impossible either to foresee or to trace back, in any *one instance*, the exact route of a die in a dice-box; yet
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it is easy to analyse and to specify the various causes of its route, and its final settling on the table, so as to shew, that there is an infinite difference between the motion and settling of a die and the voluntary actions of men, and especially to shew, that there is no evidence, not even the slightest presumption, of there being any self-governing power in the die, as there seems to be in a living person. For though the shaking a die in a box, and throwing it on a table, be fairly referable to one *Agent*, and may be thought a very simple as well as easy *action*; yet when we consider *physically* the motion and subsequent settling of the die as *effects* referable to *causes*, we find that they are by no means simple. Many different *physical causes*, and even different *kinds* of such *causes*, contribute to the various motions of the die; such as, impulse from the bottom or from the sides of the box, and from the table, *modified* too by the *elasticity* of all of them, in various degrees; gravitation, or the weight of the die, always the same, and having always equal effect, whether the die be at rest or
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in motion, and whether the direction of its motion be upwards or downwards, perpendicular, parallel, or oblique to the horizon; resistance from the air, and from the bottom and sides of the box, and from the table, (though indeed these *resistances* are only *impulses*, considered in a different point of view). Then the direction of the impulse, with respect to the centre of gravity of the die, must be considered: if it be in a line passing through the centre of gravity of the die, the motion of the die will be simply progressive; but if the impulse be not in such a line, there will take place in the die both a rotatory motion round its centre of gravity, and a progressive one in the direction of the impulse.

It is unnecessary here to consider more minutely, either the number, the nature, or the proportions, of the various physical causes of the motion of the die, as accuracy on that point is neither our present object, nor perhaps in itself attainable. On throwing a die in the common way, from a dice-box on a table, which may be

be done in a *second* of time, or less, all those physical causes are applied to it, either simultaneously or in succession, and either in *concurrence*, *opposition*, or *combination*, (+, —, ∇): but the particular circumstances of the application of them, as to quantity, time, proportion, and other relations, are unknown to us, and out of our power; and therefore, with respect to us, are as if they were not; but it cannot be believed, that any person of competent knowledge and judgement should ever suppose, that any one of those causes is separated from its effect. If any person were to entertain such an extravagant opinion, he might (if he were candid in his professions and reasonings) be easily convinced of his error, by trying separately that step of the process in which he supposed such a separation to take place.

We know, in general, with respect to the route of the die, that from being at rest it will be in motion, variously modified in kind, in direction, and in velocity, and at last will be at rest again. But from the *shape* of the die, it is physically

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impossible that it should rest in any other but one of six positions; that is, if it be thrown on a hard table; for if it were thrown on a very soft surface, or on loose sand, it might rest on one of the twelve lines or of the eight points that bound it, and in an endless variety of directions. If the die is *fair*, (not loaded), there is no *cause*, and no *power* in itself, to make one of its six surfaces turn up, rather than another; but one of them *must* turn up: it is an equal chance which of them, and five to one against any one side that can be specified. The particular series of *causes*, either simultaneous or successive, concurring, opposing, or combined, that terminate in the ultimate effect, which alone we see, being unknown to us and out of our power, the ultimate effect may fairly, and without danger of error, be regarded by us, with a view to conjecture, or betting, or calculation, as a mere matter of chance; that is, as coming to pass without any cause at all. The doctrine of chances is strictly applicable to it, and the conclusions deduced from that principle are found experimentally true with respect to a die,
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or any number of dice: but they are false and ridiculous, and repugnant to the natural, universal, and indefeasible notion of motive, when applied to the voluntary actions of men; as hath been fully shewn already, in SECT. XVI: the conclusion is obvious, and need not be here repeated.

N^o II.

“The *total want of analogy* between the influence of our appetites upon the judgment and of forces in physics, appears,” &c.

This is a strange assertion; and a mistake. The analogy between the relation of motive and action and that of cause and effect in physics, (comprehending appetites under the *genus* Motive, forces under the *genus* Cause), is great, and obvious, and generally acknowledged, and not to be denied without extravagance; and it has been fully shewn and illustrated in my Essay. It used to be thought so perfect

fect as almost to amount to *identity*: this was the doctrine of all modern Necessitarians, especially of MR HUME and DR PRIESTLY; and the very object of my Essay was to shew, that the two relations were not the same, to specify wherein the analogy between them failed, (namely, with respect to the constancy or separability of the conjunction), and to draw certain conclusions from the differences ascertained between them.——The doctrine of the *total want of analogy* between them was quite unexpected, and is still incomprehensible to me. But supposing it right, that is, supposing the two relations in question to be so completely different and unlike, that not only they are not the same, but that they do not even resemble one another, in any, the smallest, particular, this cannot reasonably preclude the inquiry into the principal differences between them; nor can it in the least invalidate any conclusions necessarily resulting from the differences observed.——The want of combination in the result, from the application of different motives, in many cases, as already fully explained, is
complete

complete proof of a separation of one of them from its proper effect or action; and, in truth, the phrase in question is little else than another expression for the same notion, so essential to my reasonings, and to all reasonings, on this subject.

“The sufficiency of the understanding for this operation,” &c. (p. 477. line 26.) Admitting the sufficiency of the understanding for *perceiving* and *judging* “to be the natural result of its intelligence,” though I think the expression a perfectly unmeaning pleonasm, and allowing the metaphors employed in the remark to pass unquestioned, I must observe, that such a phrase as “influence of physical force,” and all the words and phrases that can be contrived, will make no difference as to my argument, which is independent of words, and turns on the self-evident and the demonstrable necessary consequences of a certain relation \equiv , and on the truth or falsity of these necessary consequences, as matters of fact, in different cases of the application of motives and of physical causes:

causes : it is perfectly equal to me, whether X and Y be physical or metaphysical forces, that is, causes or motives, and whether A and B be effects or actions : I find out by the result, whether the relation in question be a constant or an occasional and separable conjunction, and whether there be in the subject, whether a living person or a lifeless body, any capacity or faculty of separating X from A, or Y from B : such a faculty is just what I call a self-governing power.

I admit, that a person having understanding without self-governing power, would, in numberless instances, as in the case of my porter, "judge one pursuit eligible, without absurdly combining it with the other;" just as I firmly believe, that many a person ill of the palsy would judge it eligible to take up his bed and walk. But a man in a palsy *cannot* do what he thinks eligible; as little could a man, whatever might be the degree or kind of his understanding or intelligence, prevent the combination, opposition, and concurrence, (however absurd these might
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often be), of the effects or influence of different motives; unless, in the first place, these were separable from their actions; and unless, in the second place, he had the power of separating them. — To this I alluded in p. 232. 233.: for though my argument is independent of all considerations with respect to the steps, such as judgement, choice, will, &c. &c. between the motive and the overt act, and though I anxiously wished to avoid such discussions, in hopes of avoiding all idle verbal disputes, and of having no appeals to make but to open experiment; yet I knew perfectly, that my argument, founded on the notions \equiv , $+$, $-$, \nwarrow , would apply equally well to every step of the process; but that, whether it did or not, or whether that was considered or not, it would apply completely to the first and the last; the motive and the action, the cause and the effect.

If any Pneumatologist should not at once perceive and understand the infinite difference between *judging it eligible to prevent* the effect (in absurd or improper combination

bination or otherwise) of any cause, and the *actually preventing* such effect, that is, separating the one from the other, let him fairly try a few such experiments as the following: Let him walk out at his window, or try to walk over a deep and rapid river on the surface of the water, or try to leap over a broad and dirty ditch; or, if these experiments be thought too dangerous to life or limb, let him swallow half a drachm of ipecacuanha, or half a drachm of jallap; or, if he dislike drugs, let him drink, instead of tea, to his breakfast, a pint, or more if needed, of the best French brandy; and let him candidly mark the result:—I take it for granted, that his understanding would judge (or enable him to judge) it eligible not to yield to the law of gravitation, not to fall to the ground with an accelerated velocity, not to fall into the ditch, not to sink to the bottom of the river, not to be carried down the stream of it, not to experience the unpleasant effects of the drugs, and not to become drunk with the brandy; yet I scarce think even a Metaphysician can be found, who will expect that
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the judgement of his understanding will avail aught in preventing those effects; or who will not see that such preventing of the effects is just what I have been reasoning about, and have been expressing by the phrases separating a cause from its effect, &c. and that to enable a man to make such experiments with safety, as well as uniformity of the result, it would be necessary, not only that the causes alluded to should be separable from their effects, but also that *he* should have the power of separating them. Now, such separability of motives and actions, and such power in the agents, appear in the ordinary conduct of mankind, but not in the phænomena of physics, where the subject is lifeless body.

N^o 12.

This paragraph deserves particular attention: for though it appear only as a remark or objection relating to a single sentence of my Essay, which sentence is fairly quoted, yet it is really an indirect

and feeble attempt to deny one of my axioms, $X + Y \equiv A + B$, or, as it might be expressed in many cases, $m X \equiv m A$. I call the attempt feeble and indirect, because the axiom is not quoted and openly denied, but only a particular case, referable to that axiom, is mentioned, and certain instances of physical phenomena are specified, which the author of the remark *thinks* contradictory to what I have stated as necessarily true in that case, as comprehended under the general axiom.

From this it appears, that he was not sufficiently aware of the nature of an axiom, or self-evident necessary truth; and particularly, that he did not attend to the relation between a *necessary* and a *contingent* truth, or what is *supposed* to be one; and consequently that he hath not fully understood the complete evidence and supreme authority of demonstrative reasoning, as distinguished from inductive, and from the evidence of perception and of testimony. But this certainly may be explained to him, or to any person: such an attempt I made in SECT. III. to which

I shall now add a few remarks and illustrations relating to the point at present under consideration ; which I own I did not think of as even a possible matter of dispute at the time when SECT. III. was written.

Particular instances, in contradiction to a *supposed* general or universal fact or law of nature, must be admitted as exceptions and limitations to that law : they may even be found so numerous, and so general, as to set aside such a supposed law, and to convince us, that our belief of it was either wholly or partly erroneous. The general notion, and the belief of any supposed principle or law of nature, being deduced from particular observations by a certain process of thought or reasoning which we call induction, can never be of higher authority than the particular facts from which it is derived, or than other facts equally well ascertained. Nay, as that very process of reasoning or induction may be supposed imperfect or erroneous, the general inference from it *may* be fallacious ; and *must* be of rather less
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authority or evidence than the particular facts on which it was founded.

But the case is widely different with respect to axioms, or self-evident necessary truths. These are equally independent of all particular observations, and of all induction from them. They can neither be discovered, nor established, nor shaken, nor confirmed, nor made more particular and limited, nor made more general and comprehensive, by such means. They contain in themselves the evidence of their own truth, which evidence is simple, direct, and *supreme*. In order to our being fully convinced that they are universally and necessarily true, nothing more is requisite but that we understand them. As there may often be some difficulty in this respect with regard to such *abstract* notions as those which alone can be proper subjects of those propositions which we call axioms, we may be assisted in apprehending and understanding them, and consequently be enabled to perceive their internal evidence, by proper *illustrations*, taken from real substances, corresponding
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in one respect, or more than one, to the notions on which the axioms are founded.

Thus, in teaching geometry, it is always possible, and sometimes may be necessary, to illustrate the axiom, "That things equal to one thing are equal to one another," by shewing the learner various examples of the meaning and of the truth of it, in lines, surfaces, solids, circles, triangles, &c. But it would be a great mistake, and a great fault in the teacher, to represent those examples as proving the axiom, or the truth and the universality of it as depending on and limited by the result of the observations in particular instances, and the axiom as being made more or less general, according to the number and the extent of the particular observations that were made and considered: for this would imply, that the axiom might not be true at all times, and in all cases; and that whenever cases occurred wherein the result, on observation and trial, did not correspond to the axiom, these were
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to be acknowledged as exceptions to it. But this, if not, strictly speaking, absurd, is at least repugnant to the notion of *axiom*: for every person who knows what an axiom is, would instantly judge, that there was some defect or mistake in the supposed observation, not that there was any error in the axiom, or any possibility of there being an exception to it. Thus, for example, if a person, on the faith of the axiom alluded to, should suppose that all quart-bottles must be equal to one another, and on comparing many such by actual experiment, and finding that they were not equal to one another, should assert that the axiom was false, or at least subject to exceptions, and in particular that it was not applicable to quart-bottles, it would instantly be discovered where his error lay; namely, in supposing that all the things commonly called quart-bottles were severally equal to one thing: and it might reasonably be suspected, that he did not know what an axiom was, that he did not understand the nature and supreme authority of necessary truths, and
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the advantages of reasoning by necessary consequences.

Now, to apply these remarks to the case in question, the objection to my argument founded on the supposed observation of certain examples in contradiction to one of my axioms, or to a case plainly comprehended under it, I have only to observe, that, sensible how abstruse, and in one respect how new, the notion of constant conjunction is, on which my axioms depend, or in which they are implied, I took care to explain and illustrate both it and them, very fully, perhaps tediously; but merely in order to make them be understood, that their own internal evidence might be perceived; not as conceiving, that those examples and illustrations could prove, or that any others could refute or limit the axioms.

The illustrations were taken from certain physical causes and their effects; and as the result in various examples corresponded perfectly to the axioms, something

thing more than the illustration which I wanted was obtained, and something highly important; I mean a proof, not indeed, strictly speaking, conclusive, but affording a probability approaching very near to certainty, that the circumstance of constant conjunction was a part of the relation of *those* causes to their effects: just as the result, when quantities severally equal to one quantity are compared experimentally, by its correspondence with the first axiom of geometry, serves to prove, not the axiom itself, but the justness of the notion of quantity, and its applicability to real substances, and the truth of the supposition of the relation of equality subsisting between each of those quantities severally and one other quantity.

According to my mode of reasoning, the *correspondence* of the result in many cases of physical causes and effects to my axioms, whatever it may prove with respect to this relation, has no more pretensions to prove or confirm the axioms implied in the notion of constant conjunction,

junction, than the *inconsistency* of the result, in many cases of motives and actions, with my axioms, has to refute them. This inconsistency only proves, that the circumstance of constant conjunction is no part of the relation of motive and action. This was precisely the use that I made of it; and it was all that I wanted for the first part of my dilemma. I shall at all times admit the same inference as to the want of constant conjunction between any things called causes and their effects, with respect to which the result in the several cases does not correspond to my axioms.

—The case is exactly parallel to that of the quart-bottles, already stated: Give us any number of quart-bottles severally equal to one, and they *must be* equal to one another; give us any number of such bottles not equal to one another, and they *must not be* severally equal to one: The axiom will still remain unshaken. So give us causes constantly conjoined with their effects, and the result from the application of them *must be* what is expressed in the axioms; give us causes the result of whose application does not correspond to the

axioms, and they *must not be* constantly conjoined with their effects; give us a number of instances of the application of causes, in all of which the result corresponds with the axioms, and we shall admit, that, in all of them, the several causes *are* conjoined with their respective effects; and we might infer by induction, with some *probability*, that this was the case with respect to all kinds of causes, until we met with instances to the contrary, in the application of some particular kinds of them; and then such instances would be acknowledged as exceptions to the supposed general rule with respect to causes; as, for example, with respect to agents, motives, evidence, the vital principle, and the partial exciting causes in the physiology and pathology of animal and vegetable life.—But whatever be the relation between these *causes*, or any others, and their respective effects, as to constant or occasional and separable conjunction, the axioms derived from this notion *must* remain unshaken, as necessary truths; and *must* be found true, as matters of fact, in the various applications of every kind of cause

cause that is constantly conjoined with its effect.

As to the three instances stated in N^o 12. as examples contradictory to my remark in p. 291. 292. which is fairly quoted in N^o 12. and which I still think just in every part, and the first part of which is clearly implied in one of the axioms, as the last is in the Doctrine of Chances, it is nowise surprising, that in none of them is the effect the measure of that "*circumstance which is in one sense its cause*:" For, in the first place, in none of them is that *circumstance* constantly conjoined with the ultimate effect, as the author of the remark has very rashly asserted; and, in the second place, in the two last of them, (which are of a very different kind from the first), other principles of change, or causes, besides that *circumstance which is in one sense the cause* of the phænomenon mentioned, concur, and are indeed absolutely necessary for the production of it. Even with respect to the first of them, the explosion of a mine of gunpowder, some other *circumstances*, besides the heat applied,

plied, are necessary for the production of the effect; for example, air: if the powder were thoroughly wet, by the mine being filled with water, it would not explode in the usual manner on the application of heat.

But, independently of this consideration of a *different kind* of cause, besides the heat, being requisite for the production of the effect usually referred to the heat alone, which consideration may be disregarded at present, as that other cause, as well as the heat, may be supposed equally applied in all cases, while the ultimate result, though the same in kind, is widely different in degree in different cases, and by no means a measure of either of the original external causes applied, it must be observed, that in "the explosion of a mine of gunpowder," there is a great concurrence, and a very *long series* of causes and effects, of the same kind with that first applied. I call the *series* of causes *long*, in consideration of the great number of steps in it, however *short* it may be in point of time. By the inaccuracy

curacy of the expression employed by the author of the remark, all that vast concurrence and that long series of innumerable little effects are represented as but one great effect, referable to the heat applied as its cause: and perhaps, from want of due attention on his part, he may have come to regard it in that improper light; for I cannot suppose him unacquainted with the generally known facts relating to the composition, the inflammation, and the deflagration of gunpowder.

“ A mine of gunpowder” is a concise, but inaccurate expression, employed to denote the quantity of gunpowder lodged in a mine. This quantity may be 100 barrels, that is, 10,000 lb. containing several hundred millions of grains or particles, each of which has in itself a due proportion of nitre, of sulphur, and of charcoal. “ The explosion of a mine of gunpowder,” means the inflammation and deflagration of every particle of the gunpowder. This may be produced or begun in one particle, or a few particles, by the application

application of a certain *degree* of heat, however small the *quantity* of it may be, which will kindle the sulphur or charcoal, or perhaps melt the nitre and sulphur, without kindling directly the latter and the charcoal. By the chemical affinities of the component parts of the gunpowder, as soon as such kindling and melting of any the smallest particle takes place, a rapid and violent decomposition of it, attended with the extrication or generation of much air, and very intense heat, is produced: this is called the deflagration, detonation, or explosion of the gunpowder. The heat thus produced has the same effect on the particles in contact, or nearly so, with the one first kindled: on the same principle, this process will go on successively through all the particles of the powder, but with such velocity, that the whole quantity of it may explode in one or two *seconds*; and this, which is the sum or amount of millions of little effects, either simultaneous or in very rapid succession, will *appear* as only one great effect produced in a moment by one single cause, perhaps very small in quantity,

quantity, and bearing no proportion, at any time, to the ultimate effect; which is also various at different times, according to the quantity of the powder exploded; that is, according to the number of little effects of which it is the aggregate amount. But, accurately considered, the ultimate effect in this case is no more to be regarded as the effect and measure of the supposed cause, than the great fire of London, which raged for many days, and consumed a great part of the city, could be reckoned the effect of the small quantity of heat, perhaps a single spark, which began it. The difference between the two cases is merely as to the velocity of the series of effects produced: but whether this series occupy only a few seconds, or many days, or many years; whether the many little effects coincide, or come so near one another, in time, as to form one great aggregate, which is the case in the explosion of gunpowder, or the burning of a house; or come so slowly as to be seen only in succession, which is the case in the burning of slow-match; it is *equally* different from

from the simple immediate effect of a cause constantly conjoined with its effect, and *equally* unfit to be a measure of such a cause.

If the author of the remark, or any other person, wish to find in the explosion of gunpowder the constant conjunction of cause and effect, (in my strict and uniform meaning of the phrase), and an effect, consequently, which is a measure of the cause applied, he must look for it in the step between the application of heat and the kindling or melting of the ingredients, and in the step between this and the detonation of the compound; and, making due allowance for the peculiar chemical principles of change, consisting in the relations among different bodies, simple and compound, and among the particles of the same body, however simple it may be, which principles of change seem to have a share, as well as heat, in producing such effects as we are considering, he will find in these steps what he wants. But he must observe, that the first
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of them depends, not on the *quantity* of heat thrown into the whole mass of powder, but on the raising the *temperature* of some part of it to a certain degree; we shall suppose (for I know not exactly the fact) to 600° . A vast *quantity* of heat may be thrown into gunpowder, enough, for example, to raise the temperature of a great mass of it 200° or 300° , if equally diffused over it all, without kindling or melting the smallest particle of it. While a wonderfully small *quantity* of heat, as, for example, what is contained in a red-hot spark struck off with a flint from steel, will melt or kindle that little particle to which it is applied; which particle will then immediately explode. Nor will it be thought by any chemist a paradox to say, that the heat in such a spark is as truly consumed, or absorbed, in heating, melting, or kindling the gunpowder, and consequently is as truly measured by the quantity of its effect in those ways, as if it had been employed in making water boil or ice melt. Yet the *quantity* of heat in such a red-hot spark of steel may be so very small, that, if it had been equally diffused

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through the whole mass of gunpowder, it would not have raised its temperature the thousandth part of a degree. If a much greater quantity of heat, as, for example, that contained in many large masses of iron of a white heat, be applied to the gunpowder, the immediate effect of it will correspond to the quantity of it, or be a measure of it; that is, more of the powder will be kindled or melted directly by it; but as soon as this effect begins, the deflagration begins, and is rapidly propagated through the whole mass; the explosion of which will take place in somewhat less time, and consequently with somewhat more violence, than if it had been produced by only one small spark. But the difference of the two explosions, in point of time, will probably not exceed a very small fraction of a *second*; and the difference between them, in point of violence or force, will be proportionably small, so as to bear no sensible proportion to the whole force of the explosion in either case: and consequently both those differences will escape
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our observation, or be to us as if they were not.

The other two instances stated in N^o 12. as contradictory to my remark, may be discussed very shortly.

“ The malignity of the small-pox is no measure of the quantity or quality of the contagious matter employed to give the disease.”

It certainly is not; nor can it be so, for three most excellent reasons: First, Because any given quantity of the contagious matter of any given quality is not constantly conjoined with any determined degree or malignity of the disease, that is, with any certain number or kind of pustules, and with any certain degree, or number, or combination, of the febrile and other symptoms; secondly, Because at least one other cause, of a different *kind* from the contagious matter, and admitting of great varieties as to its own condition, *must* concur with it to produce the disease, in any degree; and, thirdly, Be-

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cause in most cases several other causes *do in fact* concur with the two primary causes, and have a great influence in modifying the disease.

The vital principle is as necessary for the production of the small-pox, as the application of the exciting cause, contagion; nay, a particular state or condition of the vital principle is requisite for the production of the disease. The contagion, if applied to an animal of a different species from man, as, for example, to a bird or a fish, or to a man who had had it before, or to one who, from peculiarity of constitution, was incapable of having the disease, or even to one who was not, at the time when it was applied, properly *disposed* to take it, would no more produce the small-pox, than it would do if it were applied to a stock or a stone.

Even when the proper condition of the vital principle concurs with the contagion, and the disease accordingly is produced, it is greatly modified, as to malignity, by such concurrent causes as the
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state of the body with respect to fulness of blood, and tendency to inflammation, general or particular, and perhaps to putrefaction, or at least to debility; and perhaps still more by external causes of a different kind, such as heat or cold, bad air or good, proper or improper diet and medicines. According to the various management of these concurrent causes, many of which are very much in our power, the small-pox may be made either so mild as scarce to be known, or thought a disease, or so malignant as to be generally fatal.

“The contraction of a muscle is no measure of the stimulus applied to produce it.”

Certainly not; for nearly the same reasons that make it impossible that the malignity of the small-pox should be a measure of the contagion applied.

The stimulus that occasionally excites contraction in a muscle, is not constantly conjoined with any uniform degree or
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force of contraction in it; nay, not even with any contraction at all in the muscle. It is only a partial exciting physiological cause, which can have no effect without the concurrence of the vital principle; and as this principle admits of many different modifications, the ultimate effect observed from the application of a stimulus may often be various in quantity, and perhaps in quality too, when the stimulus is the same; or may be the same in both respects, when the stimulus is very different in both. A stimulus applied to a muscle perfectly dead, that is, completely deprived of its vital principle, will produce no contraction in it: a weak stimulus applied to muscles of great and peculiar irritability, (which is a particular modification of the vital principle), will produce unusually strong, and perhaps irregular, contraction of such muscles: a strong stimulus applied to muscles that are weak, or torpid, or paralytic, will produce weak contraction, or perhaps none at all.

After thus considering *physically*, and at
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so great length, the three instances given as contradictory to my remark founded on one of the axioms of constant conjunction, in order to shew that they are not inconsistent with the common, and what appears to me the just, notion of the relation of such causes and their effects, I hope I may, without any danger of being thought either obscure, or desirous to evade the most rigorous and particular investigation of the cases stated in N^o 12. give what I think the fair and complete *logical* and *mathematical* answer to those cases, and to all of the same kind; which is indeed a very short one. If X be sometimes conjoined with A, sometimes with m A, sometimes with $\frac{A}{m}$, it is not *constantly conjoined* with any one of them; nor consequently can any one of them be a measure of it.

“ Human actions do not admit of degrees,” &c. *Vide* *sis* page 271. line 20. to page 276. line 21.

“ I think the involuntary opinion of the understanding

understanding *always* has its full effect on the will."

This very erroneous assertion, for it can scarce be reckoned a real *opinion*, proceeds from confounding the two very different notions of will or choice, and opinion or judgement, properly so called; which confusion again proceeds from using the terms, *Understanding*, *Judgement*, *Opinion*, to express the two different notions in question. This appears clearly in considering such cases as that of *Medea*, page 572.; and has been fully discussed already, page 551. line 8. to page 576. line 17.

Nº 13.

"I could have wished," &c. *Vide* *sis* page 465. line 20.

"The terms *Option* and *Discretion*, which are attributed to this power when acting," &c.

I never meant to attribute *option* or *discretion* to *power*; nor did I ever conceive that *power acted*. Power and action, (in the strict and literal meaning of these terms), as well as option and discretion, are attributes of *mind* alone. By optional or discretionary power, I meant power which the mind, or living person, might or might not exert on any occasion, according to the option, discretion, or choice of such mind or living person. This *kind of power* alone, I conceive to be properly and literally power: The power (as it is called) of heat to melt ice, of water to dissolve salt, of brandy to make men drunk, &c. is plainly a very different kind of *thing*; which I conceive to be called power by a metaphorical use of this term. The purpose of the epithets *optional* and *discretionary*, so often applied to it, was to prevent ambiguity, by shewing plainly what kind of power I meant. But I have no attachment to the phrase, which, though perfectly intelligible, is evidently illogical; like the common phrases, a wise plan, a foolish project, a happy choice, a miserable life, an eloquent speech, &c. in

which that wisdom, or folly, or happiness, or misery, is *verbally* predicated of the plan, the choice, the life &c. of a person, which is meant, and, in strict logical propriety, is predicable, only of the person.——The remarks on the notion of power (page 147. to 153.) were intended to prevent such objections as these in N^o 13.

“ One should be apt to think, from some of these terms, that it was a faculty which decided according to reason and argument.”

That would be a mistake of a very odd kind; for *it* can no more *decide* than it can eat, and drink, and walk, and ride; and it can neither hear, nor see, nor understand reason and argument. The simple word *power*, and the phrase *optional* and *discretionary power*, express merely the abstract notion of a person being able, at his own option, to act or not to act; that is, they express that notion, singly, without regard to numberless other attributes of a person; just as the word *whiteness* expresses
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one thing, without regard to many other things, predicable of snow.

“ And from the last circumstance, its yielding to feelings of a certain intensity,” &c. page 480. from the top.

This remark deserves peculiar attention; for, to the best of my judgement, it is the only one of the great number contained in the sixteen paragraphs of objections to my Essay, that is strictly fair, and pertinent to my mode of reasoning. It plainly turns on *things*, as all reasonings should do, and not on words; and it shews, that the author of it understood the nature and force of my argument. But I cannot think it a valid objection to the reasoning in my Essay; and I think it may be fairly and completely answered in the following manner.

First, I admit, that men do *sometimes* perform very foolish actions in consequence of the simultaneous application of two or more motives in opposition, combination, or concurrence; and I conceive

that this may proceed in some cases from the absolute violence of the motives so applied, which may disorder both the intellectual and the active powers of a person; but more commonly from the relative want of due force of mind, that is, from weakness or deficiency of the self-governing power, which is various in different persons, and in the same person at different times. Thus a child, from a desire to sit on two stools, will endeavour to sit on them both at once: but the danger thence resulting to the sitting part is so great and immediate, and the consequences of such an attempt have so often been experienced, that the case is become proverbial. And the childish conduct in this case, and the vulgar proverb founded on it, afford more real useful practical knowledge of the human mind, and of the relation of motive and action, than could be extracted from many volumes written to prove the necessity of human actions. The child learns that he has the power of choosing, and that he ought to choose, in such cases; and as he grows up, is reminded by the proverb, that in many other cases it behoves

behoves him much to choose between different motives. Yet many people, either from natural defects, or acquired habits of indecision from want of proper exertion of their faculties, have all their lives been remarkably wavering and irresolute, unable or unwilling to choose or determine where they ought to have done it, and where ordinary men would have done it, at once. This character has attracted the attention of men of observation and wit: it has been successfully exhibited on the stage; as in the French comedy of *L'Irresolu*. I have heard of a statesman, distinguished for this peculiarity of character, who most imprudently built himself a handsome library, with two doors to it: a brother statesman, who knew his infirmity, expressed great concern at finding him in so perilous a situation; apprehending he would never get out of his library, from not being able to determine which door he should go out at.

But we must not expect in *all* cases in which there is a combination of inconsistent motives, without the possession or
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the proper exertion of the self-governing power, that there will of *necessity* be an absurd or ridiculous combination in the result or overt action, of the *same kind* with that which I have shewn to be the necessary consequence of the *constant conjunction* of motive and action; and which I have illustrated so fully. For the relation of motive and action is in fact but an *occasional and separable conjunction*; and, consistently with this notion of the relation in question, the influence of only one of the motives applied *may* be perceptible in the result; or first that of one, then that of another, then that of a third of them; and this not once only, but repeatedly, and as it were by turns. Hence that peculiar modification of indecision and weakness of mind which is called *wavering*, and is considerably different from mere *hesitation*, or want of choosing or determining. It is the frequently determining, but often changing the determination; and choosing, and for some time acting, according to different motives in succession, though they were all applied
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at once. The bad consequences of this wavering conduct on numberless occasions, especially in all very important cases, and in all cases of great and urgent danger, are as well known as those of absolute indecision; and I believe in fact, that they have been more frequently observed. As these two kinds of weakness are so near akin, it is highly probable that both may often have been combined in the same person, and may even have been shewn in the course of the same transaction, especially if it were long or complicated.—Both kinds of weakness are equally inconsistent with the character of a *great man*; for example, of a great general, or a great statesman; as many armies, and many nations, have learned by severe experience. Many persons, by the various accidents of birth and fortune, have been placed in situations, in which, for want of proper steadiness or vigour of mind, they could not act either with honour to themselves or advantage to those whose most important interests depended on their conduct.

JAMES,

JAMES, the First of England, and Sixth of Scotland, who was no way deficient in sense, or knowledge, or wit, seems to have been remarkably deficient in the no less important talent of steadiness or vigour of mind. It is said he knew well enough his own defect; and that he was once told of it in a very curious manner from the pulpit. He had heard of a famous preacher, who, according to the fashion of the times, was very witty in his sermons, and peculiarly happy in his choice of texts. JAMES got this person to preach before him; who, with all suitable gravity, gave out his text in the following words: "*James*, First, and Sixth: the latter part of the verse. "He that wavereth is like a wave of the sea, driven by the winds, and tossed." "He is at me already," said the King. The text is genuine, and the application of it just and witty, even independently of the pun, which seems so well suited to the taste of the times, and especially of JAMES and his Court. I know not whether the story be true or invented; but, at any rate, the story, and the simple text, afford

afford a good illustration of what I am here endeavouring to point out.

What I have here mentioned so fully with respect to the case of motives of only ordinary force, in persons in whom there is a want of due vigour of mind, is equally applicable to the case of motives of such extraordinary violence, that ordinary people cannot resist them; and may be sufficient to shew, that such a combination of influence in the result as is alluded to in N^o 13. *will not necessarily* take place in such circumstances. For such motives being either permanently and completely or for a time separable from their respective actions, the result *may* correspond entirely to one or more of the motives, just as if there had been no others applied; or it *may* correspond to every one and all of them successively, or by turns. When I mention this as what *may* be the result in these cases, in contradistinction to what *must* be the result on the supposition of constant conjunction, I mean only to exclude the notion of its being in any measure voluntary, or depending on the self-

governing power of the person to whom the motives are applied; which is excluded in the case stated in N^o 13.: but I do not mean to say, that it may come to pass absolutely by chance, or without any cause whatever; for such a supposition is absurd. We are only to conceive, that the varieties in the result will depend on causes or circumstances in the application of the different motives, and in the state of the person to whom they are applied, especially in the involuntary train of thought, which may be unknown to us, or, if known to us, will not be in our power. In consequence of such circumstances, the person's attention *may* be first and exclusively given to one or two of the motives applied, or first to some, and then to others of them; so that the influence of them, supposing them to have overcome the force of mind, shall not have necessarily nor constantly, whatever may be the case on some occasions, that absurd result which the author of the remarks alludes to.

But it is needless to discuss more minutely

nutely this point of the separability of motive and action, as preventing, not the possibility, but the necessity and universality, of such a result; for there is a still greater difference between the real just notion of the relation of motive and action, and that notion of it which I have considered so fully, and shewn to be erroneous; in consequence of which such a result as the author of the remark alludes to, (for example, motion in the diagonal case, p. 226. and instances, p. 260. 263.) cannot be a necessary consequence of any possible or supposeable application of motives.

The natural and just notion of motive implies in *ordinary* cases reference to the self-governing power of the agent; but in all cases, even those of compulsion, it implies the separability of motive from its proper action; and it always implies, and chiefly consists in, the notion of "that for the sake of which;" which effectually excludes such results as are at present in question from being *necessary*

consequences of the application of any motives.

For the reasons stated p. 465. l. 20. I avoided entering on any minute discussion of the nature, extent, and limits of the self-governing power; nor can I here undertake to express, in a manner free from cavil, the peculiar state, and all the circumstances, of a person under compulsion, from the application of motives of irresistible force. But I may venture to say, that a person in such circumstances is not conceived to be deprived of his understanding, or driven to madness: he is supposed to understand what he is to do, and to know whether he can or can not attain or accomplish, by any mode of acting, "that for the sake of which." I may say likewise, that what is usually called and reckoned the irresistible force of a motive, is but a relative notion: it is indeed doubly relative, as bearing relation both to the mind to which the motive is applied, and to the other motives applied along with it, but in opposition to it.

I know of no kind or force of motives that, strictly speaking, can be thought absolute, and universally irresistible: I know of nothing that could have subdued *atrocem animum CATONIS*. But we conceive, that he was endowed with very extraordinary force of mind; and an ordinary person, who should take it into his head that he was equal in this respect to *Cato*, would be as much and as deservedly laughed at, as if he should fancy that his own limbs were equal to the *invicti membra Glyconis*, or as if he thought his own talents were equal to those of *Homer* or of *Archimedes*. But the inferiority of ordinary men to *Cato*, and others of heroic virtue, is not solely, nor perhaps chiefly, in point of understanding: the knowledge of what is right, and the ability to do it in very trying circumstances, are quite different things; the former of which is much more common than the latter, and may reasonably be supposed in all who approve the conduct and admire the character of *Cato*, though probably but few of them *could* have done as he did, or been, what they behold with admiration; and

and this, not from folly, nor from ignorance, nor from vice; but merely from weakness.

Though the differences among mankind with respect to natural or to acquired vigour of mind, and consequently with respect to the kind and the intensity of motives which they cannot resist, be very great; yet there is generally understood to be a sort of common standard or average among them as to these things, just as there is with respect to all other mental endowments, or with respect to various bodily qualifications, such as stature, and muscular strength. All excuses or justifications of a person's conduct on the score of constraint, compulsion, or strong and irresistible temptation, and all our judgments when we acquit or condemn in such cases, and all our sentiments of admiration of those who have displayed on trying occasions heroic virtue, and extraordinary vigour of mind, and our contempt of those who on ordinary occasions have acted meanly, though perhaps not criminally, and have thereby shewn peculiar weakness

weakness of mind, plainly bear relation to that notion, however vague and inaccurate it may be thought, of the *common* degree of force of mind.

I doubt much whether any great accuracy in estimating the force of mind of different individuals be attainable; and, at any rate, I do not aim at it here. But I presume it will be a sufficient illustration of my meaning, and, in general, a pretty just account of the matter, to say, that we conceive that even ordinary men *may*, if they please, resist the allurements of interest or of pleasure, of various kinds; or what we call temptation: but that ordinary men *cannot* resist such motives as the fear of death and violent pain. In other words, we conceive, that the latter motives do overpower, but that the former do not overpower the common degree of force of mind.

It is certain, at least, that the latter motives, and not the former, have in all ages and countries been employed as almost sure means of compulsion; that they have
generally

generally been found effectual; that we consider a person as somehow extraordinary who has resisted them to the last; that we consider the application of them as excusing actions in their own nature improper, and, if they had been voluntary, highly criminal; that, on the other hand, mere temptation is not thought an excuse, nor consequently, in general, pleaded as one, for such improper actions; and that persons yielding to temptation, and doing wrong in consequence of it, are reckoned not merely weak, but criminal. It was thought, as in truth it was, a very extraordinary excuse for the peculation that he and his friends were charged with, that a man of no common talents, and very uncommon vigour of mind, made openly in the British senate, "That there were such temptations in India as flesh and blood could not resist." There was certainly something bold at least, if not honest, in such an avowal; but I am convinced no person of common sense and common honesty could ever hear or think of such an excuse without indignation.

But

But leaving, for the present, the examination of such cases of supposed irresistible temptation, as doubtful at best, we may consider the motives generally acknowledged as sufficient to overcome the ordinary degree of force of mind; and it will soon appear, that even their supposed irresistible influence is not uniform in the same person, nor constantly conjoined with its proper action; that it depends in a great measure on the kind and degree of the other motives applied along with it, but in opposition to it; that the influence of such motives may serve to *support*, and concur with, the force of mind, which, though *overcome*, is not to be regarded as *annihilated*, even in cases of compulsion.

The fear of death may be supposed, or may have been found on trial, sufficient to overcome an ordinary person, and make him do what he was very unwilling to do, and would not have done but for that fear; as in the common case of a traveller being robbed on the highway. This must be acknowledged to be a fair in-

stance of compulsion, and as such would be a sufficient excuse for the traveller, if, to save his own life, he gave up the money of another person entrusted to him, and which he could not replace. If he were to do this from mere *temptation*, that is, for his own interest or pleasure, he would be criminal; at least he would be thought so on this side of the Indus. But it would not follow, that the same person, either at that or any other time, would necessarily yield to the same motive, and to save his life do any other action required of him, however mean or criminal it might be; nor that he would, for the same consideration, suffer any evil that could be inflicted on him, as, for example, the extremity of torture. In the case of torture applied to obtain from a wretch the confession of a crime for which, as soon as he confesses it, he must suffer death, we have in direct opposition two *supposed* irresistible motives, each of which, if it had been applied without the other, would probably have overcome the force of mind of the person. But when both are applied at once, the person completely resists the
one,

one, and acts perfectly according to the other. This separability of even the most powerful, and supposed irresistible, motives from their actions, prevents the *necessity* of such absurd combinations as those alluded to in N^o 13. If any person think this may be accounted for merely on the supposition of absolute force in the motives, without any force of mind in the person, let him consider again the necessary consequences of his supposition, as stated in the dilemma and the axioms, and he will find his mistake.

Without such separability of motive and action, self-governing power or force of mind being excluded from having any share in the actions of men, the absurd combinations of influence *must* take place; but motive and action being separable, and the notion of "that for the sake of which" being essential to the relation of motive and action, we cannot expect a combination of action that is not in that relation to all the motives from which it proceeds, whatever be the force of the several motives applied; not even though

singly applied they would have been irresistible.

Thus, in the case p. 226. diagram 1. if the porter, instead of being offered a guinea for going in the line A B, were assured, that he should be hanged if he did not go in that line, I take it for granted he *would* go accordingly: and for a similar consideration singly applied, he *would* go in the line A C. But if both threats were applied at once, he *would not* go in the diagonal A D, any more than he would have gone in the diagonal for the guineas he might have got by going in the line A B, and for the half-guineas he might have got by going in the line A C; for this plain and satisfactory reason, that he could neither earn guineas nor half-guineas, nor escape hanging, in the different cases put, by such conduct: his action would not be in the relation of "that for the sake of which" to the motives applied. I call this reason plain and satisfactory in the case at present under consideration, because it is consistent with, and directly proceeds from, the principle (the just notion

tion of the relation of motive and action) from which I reason, and perfectly accounts for the result; which, though never yet experienced, is uniformly and easily foreseen. The same reason is frivolous and absurd, when offered to account for the result *not* corresponding to the *necessary* inference from the principle of constant conjunction, because it is inconsistent with this principle, and *cannot* account for the necessary inference from it being false, if the principle itself be true; which therefore must be given up.—It can scarce be necessary to mention, that if motives that are supposed to overcome the force of mind be applied to a person, so that a combined action resulting from both may stand in the relation of “that for the sake of which” to both, such a combined action (which in this case will not be absurd, but, on the contrary, very wise) may reasonably be expected to take place; as, for example, in the case stated p. 238. 239.; if the fear of hanging, instead of the desire of earning money, were the porter’s motive for going southward, and also for going westward, I have no doubt
but

but he would go in some direction intermediate between the two, as being the only way by which he could escape hanging, or attain "that for the sake of which" with respect to both motives.

N^o 14.

" I have no occasion, in these remarks,
" to concern myself with the fact, which
" possibly may prove to be important, and
" which I think the Essay establishes, that
" the relation between cause and effect is
" different from that between motive and
" action."

When the author of the remarks wrote this sentence, he must certainly have forgotten both the *kind* of the difference between the two relations in question, and the very particular *manner* in which it was discovered and *demonstrated*. That difference, which he acknowledges that the Essay establishes, has been ascertained by tracing the strictly *necessary* consequences of the fundamental principle of the doctrine

trine of Necessity, namely, the perfect *inertia* of the subject, and the absolute irresistible force of the supposed *causes* applied to it: these *necessary* consequences have been found true as matters of fact with respect to physical causes and effects in lifeless bodies, but false, and absurd, and ridiculous, with respect to the motives and actions of living persons.—The ultimate *necessary* inference from this appears so plain and obvious, that I could never have supposed it a matter of doubt or dispute; and its being made so now appears to me a very striking and a very instructive phænomenon in the operations of the human mind. But it is one that had not escaped the observation of BACON; and therefore *respondebit pro me Aristoteles MEUS.*

Idola et notiones falsæ, quæ intellectum humanum jam occuparunt, atque in eo alte hærent, non solum mentes hominum ita obsident, ut veritati aditus difficilis pateat; sed etiam dato et concesso aditu, illa rursus in ipsa inflauratione scientiarum occurrent, et molesta erunt;

erunt ; nisi homines præmoniti, adversus ea se, quantum fieri potest, muniant.

NOV. ORG. I. 38.

As a good illustration of this important general observation, and as a real case, very exactly parallel to that of the author of the remarks, who acknowledges the difference that I have established in my Essay, but does not acknowledge, nor perhaps perceive, what is necessarily implied in it, I shall mention a story which I remember to have heard more than twenty years ago.

One of the men who had been round the world with *Commodore Byron*, soon after his return to England, went to his native place, where he was considered as a very extraordinary personage, and was invited to a club of his townsmen, who expected to be greatly edified by his conversation. It was plain, that a man who had been round the world must know more of it than any other body. But the circumnavigator could give them but very little information with respect to what he had seen

seen in his voyage; and seemed to have very little to say for himself, till some of the club began to question him about the world being round: then he opened with a tone of authority, "As to that, I'll tell you what it is; they say the world is round; but I have been all round it, and, by God, it is as flat as this table."—Yet this honest Tar was not forsworn; but I think his best friends must admit, that he was not very expert at drawing inferences from premises, or perceiving necessary consequences; since, after knowing, and seeing, and doing what was impossible unless the world were round, he could not discover that it was so.

"It is sufficient for my argument, if a relation subsists between what is involuntary in the train of thought in the mind, and the acts of the will, as constant and certain as that of cause and effect."

This is one of the remarks that I cannot fully understand: it appears to me both vague and obscure; nor can I say

with certainty to what things and what relation the author alludes: but I guess, that by "what is involuntary" may be meant *judgement*; and by "acts of the will," voluntary determinations, or choosings, and overt actions. If so, the answer to it has been given too fully already, (p. 551. to 575.), and must not be repeated here.

N^o 15.

The first part of this paragraph is, I believe, a just account of the origin of the notion of power, not only in the author of the remarks, but in all mankind. The last part of it is another instance, like many that have been already considered, of the confusion, and perplexity, and obscurity, and error, that are almost inevitably produced in such reasonings as this, by the needless and careless use of metaphorical expressions.—The power or faculty of making efforts, is an attribute of a living person; the making efforts is the exertion of such a power or faculty, by the person:
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the person has likewise understanding, that is, he understands what he is about; and the term *Understanding* expresses merely the abstract notion of this other attribute; which can neither direct the efforts made, nor the faculty that makes them; nor can it examine any thing, nor form any opinion, nor consequently can it be under the necessity of examining any thing, or of forming any opinion: but the *person* may, if he pleases, examine a great many things, though he is not under the necessity of doing so; and if he do examine things fairly, his opinion or judgment will be involuntary; and so far is he, and his efforts, and his faculty of making them, from being under the direction of his understanding, (even admitting the metaphor), that it is rather his understanding that is in a great measure under his direction; for he can attend, or not attend, as he chooses, to those things which he might understand, and which, if he did attend to them, and consequently did understand them, he would involuntarily judge of one way, and not another. When the person has attended, and

understood, and judged involuntarily, he may make efforts, or act voluntarily, either according to, or in opposition to, his involuntary judgement; as in the case of *Medea*.—If things had been as they are stated in the latter part of N^o 15. I do not think we could ever, from the consciousness of such efforts, have acquired the notion of power; any more than we could from what happens with respect to belief.

N^o 16. *Sentence First.*

Having already, in the course of my Essay, expressed very fully my opinion with respect to the profession of belief of the doctrine of Necessity, especially in those who assert it, and yet perceive intuitively the falsity of many necessary consequences that I have deduced from it, and who deny these inferences, and hold fast the principle, without shewing any error in my reasoning, it is evidently impossible for me to make any exceptions in favour of any individual. The case of the author

thor of the remarks, with respect to "*remaining unconvinced*," is not altogether singular: I have met with the same in several other persons. It may easily be accounted for: they have no occasion to be convinced of any error in their *opinion*, or to alter their belief; which, from their own actual conduct, as well as from what they have always observed, and seem always to have expected in other men, and above all from their perceiving intuitively what necessary consequences from the principle of necessity will be found experimentally false, and what may be true, appears clearly to have been the same with that of ordinary men who assert and believe the liberty of human actions. Their situation is nearly the same with what would be the situation of a set of philosophers, who having met with the pretended demonstration, that *Achilles*, though swift of foot, could never overtake an old man, who went but half as fast, and was but a mile before him; and who, being unable to detect the sophism, had acquiesced in it, and professed to believe it; but saw at once, when the case was fairly stated to them

them in proper and accurate terms, that when *Achilles* had gone two miles, he would be just up with the old man; and that when he had gone four miles, he would be a mile before him. Surely these philosophers would have no occasion to be convinced, or to change their opinion.

There is, however, one peculiarity in the situation of the author of the remarks which ought to be considered; I mean, his having so much confidence in his own objections as to allow them to be published; which many other persons, "remaining unconvinced," like him, would not do with respect to theirs. Even this peculiarity may easily be accounted for: his objections themselves afford a full explanation of it. They are expressed in vague, obscure, ambiguous, and metaphorical terms, to which he seems to have a peculiar attachment, as he employs them voluntarily, or at least without any apparent necessity. Such ambiguous and metaphorical expressions confound and frustrate the best reasoning, and make the worst appear as plausible as the best: but as the use of
them

them is voluntary, it is beyond the province of demonstration.

For the purposes of good reasoning with one another, it is absolutely necessary that men should employ words, or symbols, that express accurately and distinctly the several thoughts or notions which they have occasion to compare together, and to reason about. Nay, though it may appear a paradox, I believe it to be an important truth, that *most* men need accurate and distinct words to enable them even to *think* accurately on certain subjects; for *most* men are accustomed to *think* and to reason by themselves, in some measure, by the help of words. If the words so employed be inadequate for their purpose, by being vague, so as to denote no thoughts with sufficient distinctness and precision; or ambiguous, so that the same word shall occasionally denote two or more different thoughts, the person using them may be so thoroughly confounded, as not only not to be able to think accurately or justly, but not even to be able to know what

what he thinks, nor consequently to give any intelligible account of it.

The learned and ingenious DR CAMPBELL, in his *Philosophy of Rhetoric*, has treated this point with his usual acuteness and good sense; and has clearly shewn, that a person may not only read, but deliberately write nonsense, without knowing or suspecting it. The same author has very happily illustrated the relation between language and thought, by comparing the former to the *medium*, such as water, air, or glass, through which the latter is to be seen; and to an instrument, such as a mirror, by means of which a person may see even his own thoughts. He remarks, that the utmost possible perfection of such a medium, or such an instrument, is, that it be so clear that itself shall not be perceived at all, while every thing that should be perceived through it shall be seen distinctly. He very justly observes, that the terms, *clearness*, *perspicuity*, *obscurity*, so commonly applied to language, denote *literally* the qualities of such a medium or instrument;

instrument; and that they are used *metaphorically* in their more common application.

If the greatest philosopher in the world should obstinately persist in always using a cylindrical mirror, he could never acquire a just notion of his own features, and, instead of his own face, would see always a very frightful and distorted image: and if he chose to view all objects only through green spectacles, he could never distinguish properly their several colours, nor ever know the full and varied beauty of the fair face of nature. If he were to maintain, that what he saw of his own face, and of other objects, was the real constitution of them, and that the common notions of them were false, his conduct would justly be reckoned uncandid, as well as extravagant. It would be reasonable and friendly to admonish him, that he was using very preposterous instruments, and to furnish him with better; but if he would not condescend to make use of these, he must be allowed to please himself; for it would be too violent

a measure to break a philosopher's mirror, because it was cylindrical; or to take his spectacles from off his nose, because they were green.—The same reasonable admonition may be given, and the same friendly offer may be made, to the philosopher who uses, in his reasonings, ambiguous and metaphorical expressions, which discolour, and distort, and confound, every thought which should be seen through them: but if he will not regard the admonition, nor accept of the offer, he must be left to himself.

Nº 16: *Sentence Second.*

“ I confess also, it seems to be very
 “ clear, that if the acts * of the will are
 “ not determined by the judgements of
 “ the understanding, but by a self-go-
 “ verning power, which *may* act, and, if
 “ I recollect right, is supposed to often
 “ act without motives, and in opposition
 “ to all motives, the human race, instead

* More metaphors: *Transcant cum cateris.*

“ of being moral agents, would some-
 “ times at least be more disorderly than
 “ any madmen; their manners could be
 “ regulated with any degree of certainty
 “ by no laws; the prescience of God Al-
 “ mighty could not trace their actions;
 “ and even his omnipotence, unless he al-
 “ tered their nature, could do nothing
 “ more for them than make a vast bedlam
 “ to contain them.”

These things, which seem so clear to the author of the remarks, are incomparably witty, and sufficiently wonderful: a very rigorous critic would perhaps require a little proof of some of them, as thinking they were of that kind which POPE has very happily termed,

— “ *Demonstration thin, and Theses thick,*
 “ *And Major, Minor, and Conclusion quick.*”

But as I am no Theologian, and am neither inclined nor qualified to reason about prescience and predestination, I think it more prudent, and I am sure it is much more easy, to let them all pass as strictly

necessary consequences of the principle to which they are referred; and to content myself with shewing what relation that principle bears to the doctrine maintained in my Essay. This relation is indeed a very remarkable one.

The principle in question is, *That a self-governing power* (which here certainly means an agent, or person having self-governing power) *may act, and is supposed to often act, WITHOUT motives, and in opposition to ALL motives.* Now, it happens that this principle, which is imputed to me, is very widely different from what I have maintained; so widely different, indeed, that the greater part of it is just what I have formally and repeatedly disclaimed in the strongest terms, as being not merely erroneous, but so notoriously false and extravagant, that there would be good reason to call in question the veracity, as well as the understanding, of any person who should venture to assert it. *Vide* p. 2. 3. 4. 5. 6. 62. 63. 64.

From the very title of my Essay,—on
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the difference between the relation of motive and action and that of cause and effect in physics, it must be evident, that it could never have been my intention to reason about actions without motives, but only about actions for which there were acknowledged or well-known motives; so that I might ascertain the difference between this relation and that with which I undertook to compare it. From the plan of my reasoning,—on physical and mathematical principles, without making any appeal to consciousness, (to which plan, I presume, it will be admitted that I have strictly adhered), it must have been impossible for me to have included in my argument any cases or instances, real or supposed, of actions without motives; because this circumstance, the want of a motive for any action performed, could be known only by consciousness, and never could be ascertained, either by open experiment, or by mathematical reasoning. From all the instances that, in the course of my argument, I have given of actions variously related to motives, it must appear, that I never meant to treat of actions

tions performed without any motives; for no such instance is given by me as part of my reasoning; but many of motives applied, to which there were no corresponding actions. From the manner in which I have stated the proposition (p. 171.) which I undertook to demonstrate, it must be evident how far I meant to go; and that I did not undertake to prove, that persons often acted *without* motives, and in opposition to *all* motives.

Any attentive reader and good reasoner, who shall compare that proposition (p. 171.) with the doctrine imputed to me in the sentence of N^o 16. at present under consideration, will be struck with the great change of meaning made in my proposition, by substituting the word ALL for the word ANY; which indeed is so great as to convert my proposition into one which I not only never thought of maintaining, but had formally disclaimed. The difference of meaning between the two adjectives in question is, I presume, so obvious, that it must be well
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and uniformly understood: if it were not, the present case would be a good illustration of it. And this difference is rendered the more striking by substituting the phrase, *is supposed to often act*, for my phrase, of very different import, *may act*.

The infinite difference between the proposition which I undertook to demonstrate and the assertion imputed to me by the author of the remarks in N^o 16. will appear plainly from the mere specification of each of them by a single example. Let any number of motives, such as duty, interest, pleasure, honour, fear, hunger, &c. be supposed to be applied at the same time to a person, in such a manner that some of them shall be in opposition to one another, others in direct concurrence or in combination with one another; *I hold*, that the person, in ordinary cases, (that is, setting aside compulsion), *may act* according to *any* one of those motives, or according to *any* two or more of them in concurrence or in combination, and of course contrary to *any* motive, either
single,

single, or concurring with or combined with others, in opposition to those according to which the person acts. But in N^o 16. I am represented as maintaining, that persons *often acted, without* a motive, in opposition to *all* the motives so applied. The imputed proposition is so extravagantly false, that it can deserve no consideration. My own appears to me a plain and familiar truth, of which we have experience every day; at least I know of no motive according to which men have not sometimes acted; nor of any that has not on some occasions been applied without being followed by corresponding action, in a manner equally inconsistent with the supposition of mere chance, and with that of absolute irresistible influence or force in the motives. But as it has been denied by some philosophers, I was at pains to examine it rigorously, and to shew, by strict reasoning, and by open experiment, if required, that such was the case.

I was perfectly aware of the usual mistake, or misrepresentation, of the popular notion of liberty; not merely by habitual
wranglers

wranglers in common conversation, but by some of the most distinguished writers on this subject, such as LEIBNITZ, HUME, and PRIESTLY; and having occasion to quote a passage from MR HUME's Essay, and to refer to one in DR PRIESTLY's, in which, by the strongest insinuation, that extravagant doctrine is unjustly imputed to those who assert the liberty of human actions, I took that opportunity to disclaim it in the strongest terms.

Even with respect to the notion and belief that a person *may act* without a motive, which I had occasion to mention more than once in the course of my Essay, (p. 56. 57. 58. 59.; 388. 389. 390. 391.; 424. 425. 426. 427. 428. 429. 430. 431.), I was at pains to declare fully and explicitly, that I did *not* assert nor undertake to prove it, but left it entire for future consideration, if it should be thought to deserve any. The discussion of it did not appear to me essential to what I undertook to prove with respect to the relation of motive and action, and the difference between it and that of cause and effect in

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physics: I saw no means of conducting it without any appeal to consciousness, and purely on physical and mathematical principles, or strict reasoning by necessary consequences and open experiment; and I therefore avoided it so carefully in all my reasonings, that a candid and attentive reader will find nothing in my argument inconsistent with the persuasion, that a person would instantly fall asleep, or die, if there were no motives applied to him; so as to be effectually prevented from acting without motives.

After all these precautions, continued uniformly from the beginning to the end of my Essay, I could not have supposed it possible that any person, from any imperfection of memory, could have so far mistaken my meaning, as to impute to me the doctrine stated in the second sentence of N^o 16.; nor could I have supposed it possible that any person who distrusted a little the accuracy of his memory with respect to that point, (which, from the hypothetical clause, "If I recollect right," appears plainly to have been the case with
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the author of the remarks), should yet have relied so much on his memory, as to impute to me the absurd opinion which I had disclaimed, and to proceed to draw inferences from it, without looking into my Essay; the slightest inspection of which would have set him right, and prevented him from so strangely attempting to put me in the wrong: and if I had supposed these things possible, and very likely to happen, I could have done no more than I did to prevent them.

The strange inferences in N^o 16. deduced from my *supposed* doctrine, seem intended as an imitation and a sort of counterpart of those which I have given (p. 257. *et seqq.*) as necessary consequences of the doctrine of the constant conjunction of motive and action, and which many men of candour, and good sense, and good taste, may think too ludicrous for a serious philosophical investigation. Without presuming absolutely to justify those ludicrous inferences, I shall only mention as some excuse for them, that they are given in illustration of certain general inferen-

ces, previously demonstrated as necessary consequences of the principle of constant conjunction, from which I was reasoning *ad falsum et absurdum*. That principle had been most confidently asserted by a great philosopher, whose very words I had quoted; and, at any rate, though it never had been asserted, it would have been fair and rational to have stated it, and to have reasoned from it by necessary consequences, as being one of the alternatives of an undeniable dilemma. The notions on which the reasoning depended ($X \sqsubset Y \equiv A \sqsubset B$, &c.) were so new and so abstruse, that it was necessary to illustrate them fully. The case of going in the diagonal, or in one of the sides of a parallelogram, though abundantly distinct, and in one respect complete and decisive, was too remote from the general conduct of human life to afford that clear and forcible illustration which was wanted: therefore instances were to be taken from the occurrences in real life; and they appear ludicrous. But this is no fault of mine, but a well-known principle of human nature, and I believe a very useful one. Any
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thing repugnant to a mathematical axiom is calmly perceived to be absurd and impossible; but any thing strikingly repugnant to the familiar principles of human nature, even though it be possible, appears to us not only absurd, but ridiculous. It is a matter of taste, to like or dislike such ludicrous illustrations; but their being ludicrous cannot weaken the force of them: *Ridentem dicere verum quid vetat?* If indeed they had been given without the previous demonstration, they would have been worse than the ravings of any ordinary madman.

These things I suspect the author of the remarks had not duly considered, when he set about drawing inferences from an extravagant principle, erroneously at least, if not unjustly imputed to me, who had disclaimed it, and very different from the common opinion of mankind.

I must differ from him even with respect to the very modest opinion that he expresses in the last sentence of N^o 16. "I do not assert that these (extravagant and ludicrous)

ludicrous) consequences, even tho' proved to be just, can impeach the validity of a demonstration." This, I think, is too modest. A demonstration *ad absurdum* is just as valid as one that is direct; and therefore, if by necessary consequences a false or absurd inference can be deduced from any principle, however demonstrated, that principle, and its supposed demonstration, must *ipso facto* stand impeached; and unless some error can be discovered, either in the first demonstration of it, or in the deduction of necessary consequences from it, it *must* remain impeached to all eternity. There is certainly no power in the British legislature, nor even in the National Assembly of France, so far as I have yet learned, that can put an end to such an impeachment. To speak without metaphor, such an opposition of demonstrations, if it could take place, would produce absolute scepticism with respect to the point in question; and would even tend to shake our faith in demonstration in general: but of this I have no fear.

As to the present instance, supposing
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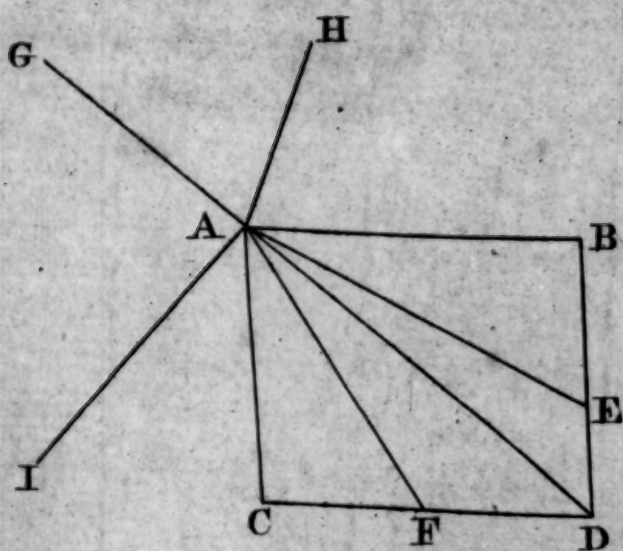
the ludicrous inferences in N^o 16. to be strictly necessary consequences of the principle, that men may act, and often act, *without* motives, and in opposition to *all* motives, it would not in the least affect *my* demonstration, forasmuch as I never asserted such a principle.

If the author of the remarks shall contrive to deduce any such false or absurd conclusions from *my* doctrine, I shall be very glad to see them, and shall pay due attention to them. I need not tell him now, for I told him more than a year and a half ago, in a written specimen (and it was not a short one) of the answers that might be given to his objections, that it was a matter of great nicety and difficulty to draw necessary inferences with respect to the actions of men, from the principle of their having self-governing power. I told him, that it appeared to me, that, on the principle of *Liberty*, the *necessity* of any particular result, in any case, was as completely excluded, as any *liberty* with respect to the result was on the principle of *Necessity*. I understand perfectly, that
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in certain circumstances, chiefly of the motives applied, it will be more *probable*, that men will act in one way than in another; though we cannot measure the degree of this *probability*, as we do in the case of chances; in which indeed, as well as in living persons, on the principle of *Liberty*, there can be no *necessity* of the result in any particular instance. But I cannot guess on what principle any person should think it *probable*, that the actions of men having self-governing power, should be either more rational or more extravagant, more vicious or more virtuous, than we usually find them. It is the principle of this *probability*, in opposition to the experience and wisdom of all ages and nations, that I am curious to learn; tho', to say the truth, my expectations with respect to it are not very high; nor are my apprehensions great with respect to its impeaching the validity of my demonstration, which is by no means a discovery in metaphysics, but only the detection of a sophism, really incredible, but long and arrogantly maintained, as a great discovery, and an important truth.



I.st



II.^d

